

TECHNOLOGY'S
WAR RECORD




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RICHARD COCKBURN MACLAURIN

TECHNOLOGY'S WAR RECORD

AN INTERPRETATION OF THE CONTRIBUTION MADE BY
THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY, ITS
STAFF, ITS FORMER STUDENTS AND ITS UNDER-
GRADUATES TO THE CAUSE OF THE UNITED
STATES AND THE ALLIED POWERS
IN THE GREAT WAR
1914-1919



PUBLISHED BY THE
WAR RECORDS COMMITTEE OF THE
ALUMNI ASSOCIATION OF THE
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

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MASSACHUSETTS INSTITUTE OF TECHNOLOGY

THE MURRAY PRINTING COMPANY
CAMBRIDGE, MASSACHUSETTS

DEDICATED TO

Richard Cockburn Maclaurin

BORN A BRITISH SUBJECT, HE GUIDED TECHNOLOGY THROUGH
THE GREAT WAR IN ACCORDANCE WITH THE
HIGHEST AMERICAN TRADITIONS

FOREWORD

THE history of the Great War is, in the last analysis, merely the summation of the acts and emotions of the millions of individuals and organizations which participated in it. It therefore seems desirable that the part played by the Massachusetts Institute of Technology, its staff, its former students and its undergraduates, should be recorded in permanent form, while the events of the struggle are still fresh in the memories of those who took part. It is also fitting that tales of skill, self-sacrifice and courage displayed by Tech men should be preserved as an inspiration to their comrades and descendants. Finally the time appears opportune for directing attention to a fact, which, previous to the war, was not generally realized, namely that such an institution as Technology is not only a valuable auxiliary in developing commerce and industry in time of peace but that in time of national emergency it becomes an indispensable part of the Nation's military organization.

In a sense, the story of the Institute and its men has already been recorded in characters which cannot be reproduced by the pen of any scribe. The real history is written in the shell-torn fields and forests of France; it is written in the blood of our friends and brothers. Such is the true record and all that the historian may hope to do is to interpret it fully and faithfully.

The account here set down does not attempt to tell the whole story. The incidents described, however, may be regarded as significant and typical, and at least may serve to indicate the true nature of the part played by Technology and its men.

This book has been prepared under the direction of the War Records Committee of the Alumni Association of the Massachusetts Institute of Technology. The work has been carried on under the general supervision of Professor H. W. Tyler, '84, while the remaining members, Walter B. Snow, '82, T. C. du Pont, '84, *ex-officio*, Harry H. Young, '91, G. D.'W. Marcy, '05, Walter Humphreys, '97, *ex-officio*, and Professor H. G. Pearson, of the Department of English, at all times have given the Editor their most hearty co-operation and support. The publication of the book has been much facilitated by those alumni and others who contributed to the guarantee fund, which practically eliminated all difficulties in financing the work. Great aid was given by the Institute publications, *The Technology Review*, *The Tech Engineering News*, *Technique*, and *The Tech*. The Editor desires especially to thank those gentlemen, several hundred in number, who contributed articles relative to incidents in which they took part, or who aided in gathering material and in verifying statements.

JOHN H. RUCKMAN, *Editor*.

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TECHNOLOGY'S WAR RECORD

CHAPTER I

WORK OF TECHNOLOGY AS AN INSTITUTION

The record of the Massachusetts Institute of Technology during the recent war is one of which every Tech man may feel justly proud. The ability of the Institute to co-operate in training men for the Nation's service for many years has received a certain amount of recognition from the Government. It was not, however, until the late emergency that the full significance of the Institute and its men as part of the Nation's military resources was demonstrated; it has been only since the armistice that measures have been taken to insure that in future Technology will not only co-operate with the Government during great emergencies, but that in time of peace as well Tech men will receive training which will fit them to serve the Nation in war as well as in industry. While mere figures can never tell the whole story of the Institute's contribution to the Nation's defense, it may be well to summarize briefly the work performed by the Institute and by its men during the recent struggle.

The Institute gave instruction to no fewer than 8,802 men as specialists and experts for various Government services, particularly aviators and officers of the Merchant Marine. In addition, 156,437 men were trained with the object of fitting them to become material for officers of the Army or the Merchant Marine in schools carried on under the direction of officers of the Institute. Research work connected with war problems was carried on in the laboratories of the Institute, and President Maclaurin is authority for the statement that at least one discovery of importance resulted from these investigations. Fifty-six members of the staff entered the military or naval service, and many of these also undertook work involving scientific investigation. The remaining members of the staff, almost without exception, acted in a consultant capacity for the Government or were otherwise engaged in work of an essential nature.

Perhaps the greatest contribution of the Institute was that made indirectly, through its former students and undergraduates. From such records as it has been possible to gather up to the present date it appears that at least 4,897 were members of the United States Army, Navy or Marine Corps, while 79 others served in the military or naval forces of the Allies. Among them no fewer than 2,528 were commissioned officers; that is to say, fifty-one per cent of the whole, and among these are numbered two major-generals and five brigadiers. At least 2,300 others, serving in a civilian capacity, aided the Government as dollar-a-year men, consulting engineers or regular employees in governmental departments. Still others performed work of equally important nature in the manufacture of munitions and equipment. It is perhaps a little difficult to say just what industries were war industries, but records now at hand prove that more than eighty per cent of our men who were not in government service were engaged in work of a more or less essential nature. The materials produced by some, notably those engaged in the manufacture of explosives, had a great and perhaps decisive bearing on the outcome of the war.

From these considerations it would appear, and the fact will become more apparent, that the Massachusetts Institute of Technology actually played a very considerable rôle in the Nation's defense — a rôle of such importance that it became, as it always must become in time of a great emergency, to all intents and purposes an integral part of the Nation's military forces. Since the armistice this fact has received official recognition through the organization of an Officers' Reserve Training Corps and through the estab-

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lishment of special courses for officers of the Regular Army and Navy on a permanent basis.

HISTORICAL REVIEW

Before taking up the story of the Institute and its men in detail it may perhaps be well to review briefly certain events connected with the Institute and its alumni during the years immediately preceding the war. Ten years previous to the outbreak of hostilities the possibility of a war appears to have been taken seriously by very few persons in the United States; if one examines the life of the American colleges at that date it will be found that the tendency was in general to minimize the need of military education and to accentuate the ideals of internationalism. As we have since learned, this tendency was encouraged by propaganda of foreign origin with the express object of weakening



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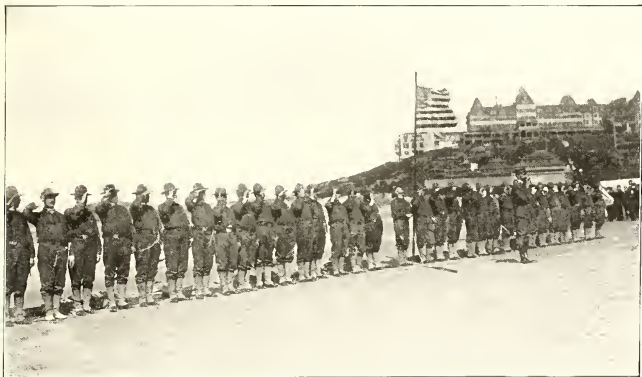
our military and naval establishment, in order that when *der Tag* arrived the United States should be a negligible factor. The Institute may have suffered somewhat from this cause, for Tech men will remember that a very determined effort was made about the year 1905 to popularize "German student life" at Technology through the inauguration of *Kommers* and the formation of societies for the study of German culture. Our graduates will doubtless recollect with considerable satisfaction that neither of these movements ever became popular, and about the year 1910 dwindled because of lack of interest on the part of the student body.

If Technology and its men failed at this date to realize the military needs of the country it was probably due to another cause. Our school had been originally founded for the study of theoretical and applied science, and it had risen and expanded during that period of our Nation's history when every energy had been placed upon developing its natural resources. In this work Institute graduates played a prominent part, and quite naturally interest in industry and commerce, and the sciences upon which they are based, had a tendency to crowd out patriotism and interest in civic welfare. Among

HISTORICAL REVIEW

the undergraduates such institutions as the Civic Club dwindled and died for lack of interest, whereas various technical societies became larger and more active each year. There was a tendency upon the part of both the alumni and undergraduates to become so interested in the material arts and sciences as to forget that no progress is possible in the material arts without a strong, representative and free government to protect their development.

Shortly after the opening of the Civil War, when the lessons of the first disastrous campaign were fresh in the minds of our people, Congress, through the passage of the Land Grant Act of 1862, provided that a certain amount of military training be given at various educational institutions. Technology was one of those selected, and a course in military science was established in accordance with this law in 1865. Courses conducted under this act in most of our major educational institutions had become more



THE CLASS OF '85 PLEDGE THEIR SERVICES TO THE NATION. NANTASKET BEACH, 1916

or less perfunctory, and there appears to have been no attempt made to co-ordinate the prescribed courses in military science with other courses designated to fit men for duties in civil life, but which nevertheless possessed considerable value from a military viewpoint. In the case of the Institute the military value of certain courses had received some recognition. The Navy Department had been for some years sending officers of the Department of Construction and Repair to Technology to receive advanced training as naval architects. The Army had also sent numerous officers for training in special subjects, notably those bearing on the electrical problems involved in handling searchlights and heavy guns.

The idea, however, of co-ordinating the military and naval training with the scientific and industrial training in such a manner as to fit every graduate of the Institute not only to perform his duty as a civilian but also to take his place as an officer in the Army or Navy in time of war appears to have been considered by no one.

During the years immediately preceding the outbreak of war little change took place, nor do the events of 1914 and 1915 appear to have produced any great impression.

TECHNOLOGY'S WAR RECORD

Certain alumni had become interested in the problem of preparedness as individuals but the officers of the Institute and the greater portion of the alumni found themselves too much occupied in making arrangements for the establishment of the new Technology buildings to take up the solution of problems, the very existence of which was only beginning to be realized by the public at large. During the exercises attendant upon the opening of the new buildings war was almost ignored. To this, however, there was one notable exception, when at Nantasket the class of '85 marched out on the beach clad in students' gowns and at a given signal representing the call of the national emergency threw off their mantles and appeared as soldiers in uniform ready to do their part.

In explanation of this apathy on the part of our alumni at this time, it cannot be said that the war had not been brought home to us. As early as December, 1914, Captain Paul G. Vignal, '15, had been killed while leading his company at Ypres; Kenneth Weeks, '12, had given his life in the struggle before the Cabaret Rouge in June, 1915; Sergeant Henry Lamy, '13, had been killed while leading his section during the great attack at Champagne in September of the same year. On May 7, 1915, Arthur H. Adams, '90, had gone down with the "Lusitania," while in March of the next year Edward H. Huxley, '95, an American citizen, was among the passengers rescued from the channel steamer "Sussex" when she was torpedoed. As we look back today it seems almost impossible, in the face of such facts, that any Tech man could have believed the United States would long escape being drawn into the struggle; yet it would appear that Tech men generally shared the belief which appears to have been current throughout the Nation, that in some miraculous manner the United States would yet escape becoming a combatant, and, as we shall see, in the fall of 1916 the special committee appointed to investigate the possibility of mobilizing Technology's resources in case of war was obliged to report that the average alumnus regarded the European war as merely an interesting subject for conversation.

This attitude was by no means universal. Everywhere men were beginning to realize that the United States could no longer remain neutral. One of the first to endeavor to bring home to the public the gravity of the situation was Frederick A. Woods, '95, who early in 1915 published a book entitled "Is War Diminishing?" in which he demonstrated that not only was war not becoming an impossibility but that wars appeared to be increasing, both in frequency and in intensity. Other alumni, as we shall see, at this time became associated with the Naval Consulting Board (see page 303), then but recently organized, and still others commenced to join various volunteer organizations pledged to the national defense.

These organizations were numerous, but for some time they lacked a leader who could direct them toward a common end. Such a leader appeared in the person of Major-General Leonard Wood. The history of the Plattsburg camps organized by him is well known, but only those who attended them can realize the tremendous influence which they had. Upon the roster of the first Plattsburg camp, in 1915, will be found the names of C. C. Batchelor (Department of English); L. L. Clayton, '17; J. P. Draper, '00; C. J. Emerson, '04; Mansfield Estabrook, '01; Lester D. Gardner, '98; D. W. Gibbs, '10; C. H. Gibson, '96; G. A. Hutchinson, '98; J. D. McQuaid, '04; N. A. Middleton, '07; A. F. Nathan, '99; R. P. Newhall, '17; Winthrop Packard, '85; J. C. Platt, Jr., '17; H. A. Rapelye, '08; R. D. Salisbury, '14; T. H. Skinner, '92; Harrison W. Smith, '97; E. A. Sumner, '97; C. W. Taintor, '93; Giles Taintor, '87; A. B. Tenney, '94; G. R. Wadsworth, '98; and C. G. Whitaker, '16. Of these men it is safe to say that every one returned from Plattsburg an ardent exponent of the doctrine of preparedness. Every one of them whose subsequent record is known performed war work of a more or less important nature. With one exception all who were graduated since 1900 were subsequently commissioned officers in the United States Army, the majority in the Air Service or Infantry.

A number of these men became prominent in the preparedness movement, notably Charles H. Gibson, '96, and Lester D. Gardner, '98. Gibson, although prevented from taking up active service because of physical disability, was a frequent speaker in the cause of preparedness during the year 1915 and was subsequently prominent as an active member of the Military Training Camps Association, the National Security League, and the



THE FIRST PATROL SQUADRON, ORGANIZED BY LORING SWASEY, '98

Navy League. Gardner undertook the publication of the magazine *National Defense*, the entire object of which was to further the cause of military preparedness. The first issue appeared in January, 1916, and the publication continued its work throughout the summer. In October it was discontinued, but Gardner had the satisfaction of knowing that practically every measure for which the publication had fought had been adopted.

In the meanwhile interest in naval preparedness was increasing, and in the year 1915 a so-called "Naval Plattsburg" or training cruise was organized. This movement was in a way a more or less accidental outgrowth of a piece of work performed by A. Loring Swasey, also of the class of '98. In 1915 he had designed a 40-foot express cruiser called the "Hoop-La" for Harold Wesson, '01. This boat was entered in the cruise of the New York Yacht Club for that year, and with the rest encountered a fearful gale which well-nigh destroyed the fleet between New London and Newport. The "Hoop-La," however, although she was among the smallest craft, made the trip through the storm from New London to Newport in a little over two hours. The performance of the boat aroused tremendous interest throughout the United States, naval officers in particular seeing in such a boat great possibilities for protecting larger craft from submarines. As a result of the interest manifested, Swasey the next year organized the "First Patrol Squadron," consisting of five 40-foot boats and later four larger boats, all built by private owners for the express purpose of being ready to turn over to the Government in case of war. He then started to organize a practice cruise, but the naval authorities became so much interested that the whole affair finally became an official matter and a part of the naval training cruise of that year. The squadron was the same which took part in the ceremonies connected with the opening of the new Technology; it proceeded from the dedication exercises directly to the point of mobilization of the Atlantic Fleet for maneuvers. The historical importance of Swasey's squadron may be judged by the fact that its members became the first officers of the United States Naval Reserve Force.

As the question of preparedness for war received more attention from the public, the importance of science and industry in warfare began to attract notice. The movement towards proper preparedness along these lines was greatly aided by two of our

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alumni — Doctor George E. Hale, '90, and Doctor Hollis Godfrey, '98. At the time of the torpedoing of the "Lusitania" Hale came to the conclusion that the United States was certain to be involved and proposed to the National Academy of Sciences the formation of a council of experts in scientific research to aid the Nation and its allies in mobilizing the scientific talent of the country in case of war. The suggestion was not at that time acted upon but after the sinking of the "Sussex" his plan was approved and, as we shall see, led to the formation of the National Research Council (see page 304), an organization which did much toward aiding the Government in the solution of some of the most difficult problems with which it was subsequently confronted. Godfrey interested himself in the industrial phase of the problem and is credited with having played an important rôle in securing the enactment of the Hay Bill, sometimes called the National Defense Act, by which the Reserve Officers' Training Corps was established and the Council of National



SWASEY'S PATROL SQUADRON ON THE NAVAL TRAINING CRUISE OF 1916

Defense created (see page 306). The Council, of which Doctor Godfrey subsequently became a member, played an important part in the mobilization of the Nation's industrial resources, particularly during the opening days of the war.

Toward the close of the year 1916, therefore four Tech men — Lester D. Gardner, '98, A. Loring Swasey, '98, George E. Hale, '90, and Hollis Godfrey, '98, were taking an active part in the preparedness movement as it affected military, naval, scientific and industrial preparation. The Institute had moved into its new buildings, and the staff, alumni and undergraduates were able once more to give attention to the events which were taking place in other parts of the world.

At the October meeting of the Alumni Council, preparedness became the general subject for discussion. Doctor Hale had recently returned from abroad convinced that the United States would very shortly become a belligerent, and he lost no opportunity for bringing this fact home to all with whom he came in contact. In this he was ably seconded by Mr. Gardner and by others. At the December meeting of the Council a committee was appointed for the mobilization of Technology's resources. This committee from

PROBLEM AND GENERAL POLICIES

the date of its appointment labored unceasingly to place the Institute in a position to render the maximum service to the Nation at the outbreak of hostilities. The committee worked in close co-operation with the Council of National Defense and the National Research Council, and, through its efforts, at the outbreak of war arrangements had already been made which provided for the use of the staff and laboratories of the Institute for the investigation of any research problems with which the Government might be confronted, and steps had been taken whereby the technical ability of the alumni might also be made immediately available.

As a result of these measures the Institute was probably better prepared than the average educational institution for the emergency which arose when the United States became a combatant. There were, however, certain matters in which it was not ready. Even at the outbreak of war it would appear that those interested in working out a program of national preparedness had quite generally failed to recognize that educational institutions might render service of a most essential nature in performing their normal function of education.

As a result there had been little discussion of this phase of the matter, the people at large had not been educated and no definite public opinion had been formed. There was no pre-arranged plan which might be followed; there was no predetermined policy. It was necessary that the Institute work out its own program and "carry on" until a national policy should be developed.

With the exception of this lack of policy, which affected all educational institutions alike, the Institute was well prepared to render service in time of war. Its material equipment, including laboratories, apparatus and buildings, was probably the most complete and well arranged in the world. It possessed a staff splendidly trained, well disciplined, thoroughly accustomed to co-operation and made up of men with national and international reputations. Best of all, the Institute possessed as a president a man of unusual foresight and force of character, a man who had already seen his own native country struggling through two years of war and who realized much more clearly than the average man of American birth the problems which would arise upon a declaration of hostilities.

THE PROBLEM AND THE GENERAL POLICIES ADOPTED

The problem which Doctor Maclaurin faced was simply that of determining how the Massachusetts Institute of Technology, its equipment, its undergraduates and its staff could best be used in the interests of the Nation. The most natural tendency at such a time was for each individual to volunteer his services to the Government and for the Government to accept them. Thus the service of many members of our staff was given to the Government in their capacity as individuals. Professor William H. Walker became a colonel in the Chemical Warfare Service and rendered such valuable aid to the Government as to win the Distinguished Service Medal. Professors Norris, Mulliken, Spear and Lewis of the Department of Chemistry and Chemical Engineering entered the same corps, Professors Spear and Mulliken serving in the research and administrative divisions in the United States, while Professors Norris and Lewis saw service abroad.

Professor D. C. Jackson of the Electrical Engineering Department entered the Army as a major of engineers and performed service of a most essential nature in developing some four hundred power plants of semi-permanent nature, which supplied the electricity for various uses in the American Expeditionary Forces. He also served later as a member of the War Damages Board appointed by the Interallied Peace Commission. As a result of his work Professor Jackson rose to the rank of lieutenant-colonel, received a personal letter of commendation from General Pershing and was decorated with the Legion of Honor. Professor A. E. Kennelly, also of the Electrical Engineering Department, served as civilian liaison officer in France, working under special instructions from the Chief Signal Officer of the United States Army.

Of the Department of Biology and Public Health, Professors Whipple, Gunn and Prescott were called upon to perform important work. Professor Whipple was sent to Russia with the American Red Cross Commission, as deputy commissioner. Professor

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Gunn served in France in the Bureau of Tuberculosis of the American Red Cross; later as associate director of the Rockefeller Foundation for the Prevention of Tuberculosis in France he had charge of the educational work of that organization. Professor Prescott entered the Sanitary Corps of the United States Army with the rank of major and was assigned for duty to the office of the Surgeon-General, where he worked on various matters pertaining to food and nutrition and was recommended for promotion on three separate occasions.

Professor J. C. Riley of the Department of Mechanical Engineering became a major in the Air Service, serving abroad from October, 1917, to July, 1919.

The service flags of the various departments show that the following number of men served actively as individuals during the war: from the Department of Civil and Sanitary Engineering, two; Mechanical Engineering, seventeen; Architecture, two; Chemistry and Chemical Engineering, twenty; Electrical Engineering, eight; Biology and Public Health, four; Physics, six; Geology, two; Naval Architecture and Marine Engineering, one.

Many others also were called upon to perform work of a noteworthy nature in the capacity of special experts for the Government. A number, notably Professors Noyes, Talbot, Sherrill, Spofford, Burton, Miller, Tyler, Russell, Bigelow and Hovgaard rendered valuable assistance as civilian consultants.

Great, however, as was the service rendered by these men as individuals, it was clear to President Maclaurin from the start that the greatest power of the Institute could not be developed except as a whole. The Institute's organization and equipment represented in itself a tremendous investment of time, money and brains. It was an organization which, once destroyed, could not be rebuilt; and it was an organization which was in itself a valuable military asset.

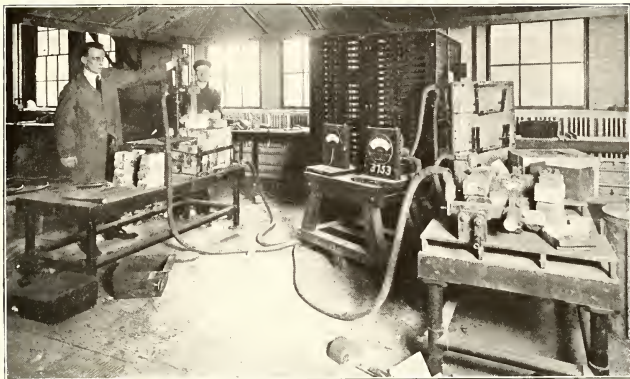
There were three definite ways in which such an organization could be of service to the Nation. First, it could use its facilities for technical education in preparing experts for Government service or in providing special training for members of the Nation's military or civilian forces. Second, it could make use of its immense and thoroughly co-ordinated laboratory facilities to carry on research. Last, and not least important, it could, by continuing the education of its undergraduates, furnish a supply of young men with sound basic education who would be suitable material for officers of the Army or Navy.

In the matter of providing technical training for the men in the government service, particularly the Army and Navy, Technology had already had considerable experience. In the spring of 1916 Major (later Colonel) Cole, Professor of Military Science at the Institute, made public figures showing that there were serving at that time as officers of the Regular Army more graduates of the Institute than of any other school or college, West Point alone excepted. These figures showed a total of one hundred and seventeen men, distributed as follows: Cavalry, four; Infantry, seven; Field Artillery, seven; Corps of Engineers, sixteen; Coast Artillery Corps, eighty-three. In addition to these a large number of officers of the Army had at one time or another taken special courses at the Institute. How satisfactory the instruction had been may be shown by the following extract from a letter written by Major-General E. M. Weaver, at that time Chief of the Coast Artillery Corps and himself a former student at the Institute.

"For a number of years Technology has played an important part in the instruction of Coast Artillery officers for duty as instructors in the Department of Engineering and Mine Defense of the Coast Artillery School. . . . Technology was chosen because of its record for efficiency and thoroughness."

Our graduates in the service of the Nation were by no means confined to the Army; since 1901 we had been training officers of the United States Navy in the Course in Naval Architecture. Indeed, no officer, even though an honor graduate of the United States Naval Academy, was considered qualified to enter the Bureau of Construction and Repair until he had completed a three-year course at the Institute and taken a degree of Master of Science. As a result the Bureau at the outbreak of war contained sixty-three Tech graduates, about seventy-five per cent of its total officer personnel.

PROBLEM AND GENERAL POLICIES



SCENE IN THE ELECTRO-CHEMICAL LABORATORY

In the matter of aeronautics also we had been pioneers and possessed the only course in aeronautical engineering in the United States. This course, established in 1913, was laid out along lines more or less similar to those of the Course in Naval Architecture and was deemed of such military importance that Lieutenant (later Commander) Hunsaker, United States Navy, had been placed on detached service by the Navy Department and detailed as instructor in this subject at the Institute. In the year 1916 the course had attracted the attention of the War Department and five army officers had been detailed to receive instruction. Altogether, ten men had been graduated. When it is realized that the total number of qualified aeronautical engineers in the United States at the outbreak of war numbered barely a score, the importance of the training given these men may be estimated.

From the preceding paragraphs it is clear that from a military standpoint Tech-trained men were well-trained men. This fact a little later received startling confirmation, when in May, 1917, examinations were held for candidates for the United States Corps of Engineers. Hundreds of men throughout the country took the examination; only thirty-eight passed. It is significant that of these thirty-eight, seventeen were graduates of Technology. Still more significant is the relative standing, for the candidate who passed first was a Tech man; the candidate who passed second was also a Tech man and of the first nine, six were Tech men!

As we have already seen arrangements had been made to utilize the Institute's laboratories and staff upon research problems, and the excellence of the equipment and the experience of the staff in this line of work need scarcely to be dwelt upon. As is well known, experiments conducted under the direction of Professor Cross in the Rogers Laboratory of Physics formed the basis for the development of the modern telephone, while others also carried on under his supervision were largely instrumental in the development of the phonograph. The work of Professor Richards in the Ore Dressing Laboratory provided the foundation for modern practice in the concentration of ore. Research work in the Laboratory for Testing Materials under the direction of Professor Lanza was the first serious attempt to determine the strength of such structures as wooden

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roof trusses and brick piers, by the testing of full-sized specimens; while the investigations of Professor W. R. Nichols, completed by Professor Thomas M. Drown and Mrs. Richards, had served as the first step toward systematic investigation of municipal water supply. From the point of view of the Government in time of war, the Institute possessed facilities for the investigation of war problems which could be duplicated at few other points. Thus in the mechanical laboratory there was ready for use a Universal testing machine of four hundred thousand pounds capacity, capable of handling specimens either in compression or tension, or of breaking a specimen under transverse stress, over a span of eight feet. A compression machine of one million pounds capacity had been ordered and was actually under construction in Switzerland, but it was impossible to have this machine in position before the signing of the armistice. There was also a very large number of smaller machines which, as will be seen later, aided materially in carrying on investigations of various materials for the Government. Our Metallurgical Laboratory was also exceptionally well equipped with electric, smelting and other furnaces, heat-treatment furnaces and welding apparatus. The laboratories of physics, chemistry and physical chemistry also possessed equipment of a most unusual character. Finally, Technology was the only institution in the country that had taken up the question of aeronautics seriously and, while our laboratory facilities proved scarcely equal to the tremendous demands made upon them, unique facilities for research work had been provided. The most notable of these was a wind tunnel of sufficient capacity to test model aeroplanes and vanes with a total span of eighteen inches, in a wind ranging from forty to forty-five miles an hour, with results that could be depended upon as reliable. Arrangements had also been made for the testing of aeronautical engines with provision for direct exhaust. The main advantage which the Institute possesses as a center of scientific research does not, however, rest upon the presence of any particular machine, or the development of any particular laboratory; it is rather in the close association of allied laboratories and the exceptional opportunities for co-operative work, which permit a given problem to be attacked from a great number of angles by a staff of experts who are well acquainted with each other and accustomed to co-operate.

In the matter of undergraduate education the situation was not so favorable. The problem in this case was to modify the curriculum of the Institute in such a way as to include those subjects which are generally classed as being of a purely military nature but which would be necessary in order to fit the men to take up at once duties as officers in the Army or Navy. The problem was somewhat complicated by the action of Congress and the decisions of the Provost-Marshal-General and the General Staff relative to the draft. In fact the attempt to continue undergraduate education and to achieve really useful ends became not only a struggle to co-ordinate this education with the military needs of the country, but also to gain official recognition for the methods adopted. As will be seen, for something over one year and a half the Institute endeavored to make such an adjustment and attained partial success through the organization of the Students' Army Training Corps and the Students' Navy Training Corps, organizations which included all collegiate institutions in the United States, under the general supervision of President Maclaurin as educational director.

UNITED STATES ARMY SCHOOL OF MILITARY AERONAUTICS

Immediately after the severance of diplomatic relations with Germany, to be exact on February 5, 1917, President Maclaurin telegraphed to the War Department, placing our laboratories and staff at the Nation's disposal for such work as the Institute might be considered best fitted to perform.

On April 6 war was declared, and it soon became clear that the United States could render great aid to her allies in the field of aviation, or, to use the phrase so common at that time, we could "help put out Germany's eyes." The first essential was a large corps of aviators, and these would have to be trained very rapidly. Accordingly, on April 30, 1917, the War Department notified President Maclaurin that the Institute had been selected as one of six ground schools for cadet aviators; the other five were to be located

FIRST GROUND SCHOOL FOR PILOTS

at Cornell University, Ohio State University and the Universities of Illinois, Texas and California. In each school a commandant appointed by the War Department was placed in charge, while the technical instruction was under the direction of an academic board, the president of which reported to the commandant.

FIRST GROUND SCHOOL FOR PILOTS

The First Ground School for Pilots at the Institute opened on May 21, 1917. The ensuing months form a chapter of most creditable achievement. The curriculum and student personnel underwent changes calculated to break the spirit of the most enthusiastic instructors and had the instructing staff of the Institute been organized along stiff, unyielding lines it would have been absolutely impossible to have carried through the work. This, however, was not the case. The organization, directed first by Professor C. H. Peabody and later by Professor C. B. Breed, proved elastic and every change, no matter how sudden or arbitrary, was taken care of promptly, effectively and cheerfully, with the result that, in spite of the lack of equipment and the limited number of suitable instructors, the courses went on smoothly and with most satisfactory results to all concerned.

Simultaneously with the announcement on April 30 that a ground school would be established at the Institute, Major (later Colonel) E. T. Cole, at that time in charge of military instruction at the Institute, was appointed to act as commandant until some other officer could be made available for the duty, while Professor C. H. Peabody, head of the Department of Naval Architecture, was appointed president of the Academic Board.



CIVIL ENGINEERING DEPARTMENT FITTED UP AS A BARRACKS



INSTRUCTION IN RIGGING IN THE SCHOOL OF MILITARY AERONAUTICS

As soon as this had been arranged Mr. Alexander Klemin, instructor in aeronautical engineering, who had succeeded Commander J. C. Hunsaker, '12, when the latter had been ordered to Washington at the outbreak of war, together with Mr. D. A. Fales (of Technology) and Professor R. DeC. Ward (of Harvard) was sent to Canada to study the organization and curriculum of the Royal Flying Corps Schools. By the date of their return suitable arrangements had been made and the school opened. The first squadron, composed of twenty-three men, began its regular work on May 21. Captain B. W. Mills, who had been appointed commandant, reported to Colonel Cole on May 24, and the instructing personnel was then as follows: Lieutenant Claude H. M. Roberts, '17; C. G. Miller, '17; A. F. Benson, '17; Leon L. McGrady, '17; and F. V. du Pont, '17.

The newly-organized school was seriously handicapped by lack of equipment, especially airplanes and engines. Until the Government could supply this need the only apparatus available was that which had been used in the Institute's Course in Aeronautical Engineering. This was wholly inadequate, for it had been sufficient only to meet the demands of classes of half a dozen students, whereas the ground school squadrons, each numbering twenty-five men, were arriving weekly. The course was eight weeks long, so that soon two hundred men were enrolled. Fortunately, the new du Pont Air-drome was ready for occupancy. The Gas Engine Laboratory of the Mechanical Engineering Department was used for aeronautical motor instruction. An airplane and such spare parts as could be obtained promptly from the Government were placed in one of the lecture rooms. The Civil Engineering Department Museum was fitted with bunks and used as barracks.

FIRST GROUND SCHOOL FOR PILOTS

Lack of facilities, however, was largely neutralized by the quality of the men who reported. The requirements for enlistment in this service included at least two years' attendance in college and the men enlisted were the very pick of college men. After three weeks the supply of men of this class was largely exhausted and it was necessary to lower the standard to high-school education or its equivalent, but the men were still, for the most part, keen young fellows, intelligent and enthusiastic.

As the school was a "ground" school no practical training in flight was given. Every other subject, however, necessary to the education of the pilot was taken up. The work included instruction in the science of flight, the uses of airplanes in warfare, duties of squadron and flight commanders, internal-combustion engines, rigging, instruments, signalling, use of compass, wireless telegraphy, photography, map-reading, artillery observation, bombing, operation of aerial machine guns and topography. The men attended classes throughout the morning and took calisthenics and drill in the afternoon. Preparations for class work filled each evening until taps.

Machine-gun ranges were built and many other interesting devices were provided to render the training more practical and efficient. Perhaps the most interesting of these was a landscape-target for the purpose of artillery observation. This target was located in the southerly end of the Steam Laboratory, Room 3-150. It was a painted map of a portion of Belgium, which had been drawn to such a scale that, when viewed from a gallery above, it would appear to the eye as the terrain it represented would appear to an aviator at an altitude of five thousand feet. On the underside of the map were incandescent lamps, any one of which could be lighted by an operator, the gunner, who sat at a table under the map; these light flashes could be seen through the upperside of the map. The student in the gallery was in telegraphic communication with the operator under the map, and thus directed "shots," each flash of light representing the burst of a shell. If the shot did not strike the target intended, a telegraphic message was sent by the flyer (the student) to the gunner (the instructor), who fired the next shot where directed and by repeated corrections a "hit" was finally obtained. This practice gave the student not only experience in telegraphy, but also in estimating from the airplane distances and directions on the ground. The conditions of actual combat, fog, hostile planes, fire from anti-aircraft guns and the constant manoeuvring of the pilot could not be simulated, but the target gave the men excellent training in instinctively spotting the shot.

In the first squadron which was graduated on July 14, 1917, was Douglas Campbell, the first American-trained ace. This squadron and several of the other early squadrons were sent overseas directly from this ground school. Later squadrons, however, were sent to the principal flying fields in the United States for practical training in flight.

On August 1, 1917, Captain F. Seydel succeeded Captain B. W. Mills as commandant and a little later was himself succeeded by Major A. L. Sneed, a West Point graduate. Major Sneed appears to have been a man of considerable force and initiative. He also possessed a clear appreciation of the value of thorough technical training and of the experience possessed by the Institute in giving this type of instruction. As a result, the Academic Board was given a freer hand and a thorough reorganization of the course was thus made possible. Equipment furnished by the Government began to arrive and the course was broadened and improved. So much additional laboratory space was required that it was necessary to build four new engine-testing sheds in the rear of the main buildings and adjacent to Vassar Street. It was now possible, by mounting the engines and fitting them with the peculiar type of dummy propeller known as "clubs" (so designed as to allow the engine to develop approximately the normal torque without developing any great tractive effect) to give the men instruction in tuning up engines and "trouble shooting."

An aviation detachment had also been established at the Institute by the Navy Department (see page 20) and it was deemed advisable to build a hangar in the rear of the buildings, half of which was to be used by the army ground school and the other half by the Naval Aviation Detachment. Here it was possible to give practical instruction in aligning airplanes, wing covering and repairing, wire and cable splicing, and other operations involved in the proper maintenance of the machines. A new and larger aerial observation landscape-target was also constructed.

TECHNOLOGY'S WAR RECORD

Professor Peabody had up to this time acted as president of the academic boards for both the military and naval aviation schools. The work had now become too great for him to continue it unassisted and Charles J. Emerson, '04, was appointed to assist him, with the title of Dean. As the scope of the work continued to enlarge Professor Peabody was obliged to withdraw from the army school, and on November 19, 1917, was succeeded by Professor C. B. Breed of the Department of Civil Engineering.

The Institute had now become a center of military activity. The cadets were kept busy in disciplinary drills and groups of these young men, with their campaign hats set off by the white band denoting them to be prospective flyers, could be seen at all hours of the day on the Esplanade and the open spaces about the Institute, going through the movements involved in school of the squad, school of the company, gas-mask drill and military athletics. The work was carried out with no intermission, except that necessary for meals, from reveille until taps throughout the weekdays. Most of the cadets had no friends in the neighborhood of Boston, and on Sundays time might have hung heavily upon their hands except for the thoughtfulness of Mrs. Edward Cunningham, the widow of Edward Cunningham, '91, whose name will appear so often in the story of Technology's work during the war. Each Sunday morning Mrs. Cunningham would arrive at the Institute with a fleet of automobiles, numbering anywhere from seven to ten, pack them full of aviation cadets and drive them to her country estate in Westwood, where they were at liberty to amuse themselves as best suited them, playing baseball, rambling through the woods and enjoying the country scenery. For those who could not leave the Institute, the ladies of a special committee of the War Service Auxiliary (see page 69) also provided entertainment in the Emma Rogers Room, where each Sunday afternoon tea was served to the cadets and their friends.

Unfortunately, just as the ground school was really beginning to do its best work, it was necessary for it to suspend operation in order that other government needs might be taken care of. Accordingly, on January 5, 1918, this school came to a close, the students being transferred to Cornell and Princeton. Of the 851 students who attended this school, 503 were graduated, 74 discharged and the remainder transferred.

THE SCHOOL FOR AVIATION ENGINEER OFFICERS

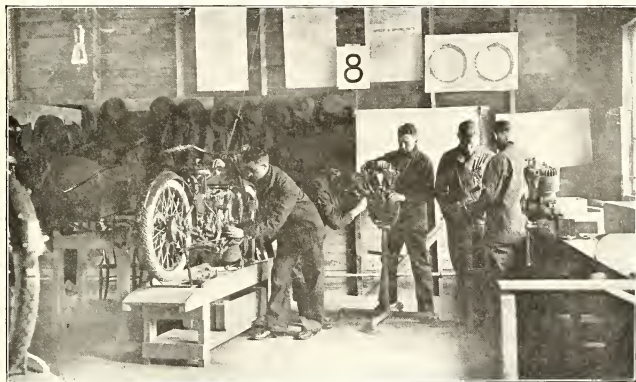
The Ground School for Pilots was abandoned to make way for a new school for training engineer officers for the Aviation Section of the United States Signal Corps. The Government had already attempted to establish such a school at Kelly Field, Texas, but, owing to the lack of laboratory facilities and, more important, to the lack of a suitable instructing staff, it had proved a failure. Other experiments being no more successful, the War Department therefore determined to establish a single school at which all officers of the Signal Corps were to be trained and selected the Institute as the place at which the work was to be done. As it was impossible to carry on this school simultaneously with that for cadet pilots, it was necessary to discontinue the latter.

On January 7, although but two days had elapsed, the new school was put in operation. It differed materially from the previous school, since matters connected with navigation were less important to the engineer officer than to the pilot, and, as a result, some rearrangement in the instructing personnel was necessary. The new academic board accordingly was made up as follows: Professor C. B. Breed, President; J. C. MacKinnon, Assistant to the President; and P. C. Leonard, Recorder. The following men on the Board were in charge of the various departments: A. E. Powell, Aerial Observation; Lieutenant L. A. Swan, United States Reserve, Aides to Flight; F. V. du Pont, Airplanes; D. A. Fales, Engines; Lieutenant W. C. Wood, United States Reserve, Gunnery; Captain Rodman Gilden, United States Reserve, Military Studies; and H. N. Carlson, Signalling and Radio. Captain (later Major) Gerald Chittenden had reported to assist Major Sneed and sometime later succeeded him as commandant. Captain Chittenden had previously been a master at St. Paul's School, Concord, New Hampshire. His experience in educational work gave him a ready comprehension of Professor Breed's purposes

SCHOOL FOR AVIATION ENGINEER OFFICERS

and efforts as expressed in management of the technical courses and he co-operated most effectively with the Institute Staff, with the result that under his command the school became most efficient.

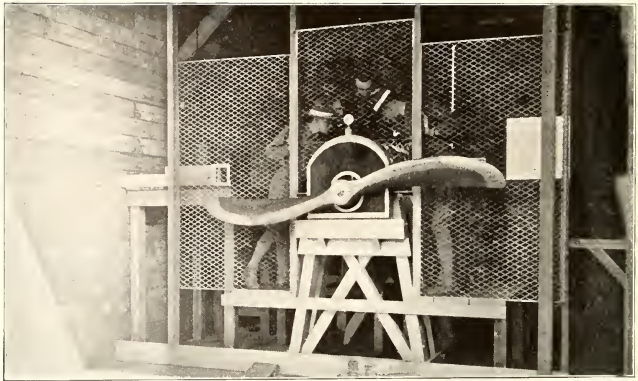
The first men assigned to the school were those who had started the course in December, together with a number of others who had started similar courses at Cornell, Ohio and Princeton. They were a somewhat heterogeneous assemblage, varying from twenty to fifty years in age and in rank from private to captain. They ranged from men who had had years of practical experience in manufacture and were highly specialized experts on internal-combustion engines, to men whose sole acquaintance with machinery had been gained on the farm. Most of them had long been unaccustomed to regulated study and some had had no education other than two or three years in grammar school. As to military training, some were recent recruits, while others had seen as much as eighteen years' service in the Army.



INSTRUCTION ON MOTOR CYCLES—SCHOOL FOR ENGINEER OFFICERS

Such material presented a difficult problem from an educational standpoint and matters were not helped by the rapidity with which the men arrived. A squadron of sixty men was started every week, but in some weeks over a hundred candidates reported. This over-supply was met, however, by the formation of a preparatory squadron, in which the men remained while reviewing the elements of algebra, plane geometry and mechanics, until they could take up the regular course, while those who were college graduates were given a course in conversational French. Men in the preparatory squadron were classified relative to their ability and experience. Those who had already had experience in allied lines of work were given comparatively brief courses and graduated into the regular course after two or three weeks, while others were held as much longer as seemed necessary. In this way the maximum number of men was turned out in the time available and uniformity of training was assured.

Many subjects, such as wireless telegraphy, signalling, navigation, aerial observation and reconnaissance, which were taught the cadet pilots were omitted from the engineer officers' course and thus time was made available for the study of aircraft motors, airplanes,



CADET PILOTS' TESTING ENGINE

materials of construction and motor transport. An engine-testing shed on Vassar Street, which had been used in the previous school as a motor-testing laboratory, was remodelled and used for instruction in the care and maintenance of motor transport. During the early stages of the school local motor-truck companies lent equipment, but a little later government equipment arrived, comprising two three-ton Liberty A trucks, two one-and-a-half-ton Liberty B trucks, motor cycles and display sections of automobile parts, such as rear ends, differentials, steering gears and magnetos. Excellent and practical training in dismantling the machines, overhauling them and reassembling them — every department of the work, including tire repairing — was thus made possible.

By March, 1918, a slackening of the demand for engineer officers made it possible to lengthen the course from eight to twelve weeks. The size of the squadrons dropped from sixty men to forty and the work was amplified to include training in machine-shop practice and woodworking. The course, as finally given, was splendidly adapted to fit the students for work under service conditions and the graduates were assigned a great variety of duties. Some took charge of the maintenance of the planes at flying fields; others were assigned to supervise transportation of the machines; still others were transferred to the departments dealing with airplane production. These appointments were made by the Aviation Section of the Signal Corps, in accordance with the advice of the Institute authorities, who interviewed each man and recommended his assignment according to his previous experience and the ability shown by him while under instruction.

The beneficial results of the training given these men are hard to overestimate. Altogether 975 took the course, of whom 695 were graduated, 229 discharged and the remainder transferred to the various branches of the Air Service elsewhere. These men filled a long-felt want and it will be found that after they had reported to the squadrons and fields a material reduction in accidents took place, despite the fact that more machines than ever were in the air.

SECOND GROUND SCHOOL FOR PILOTS

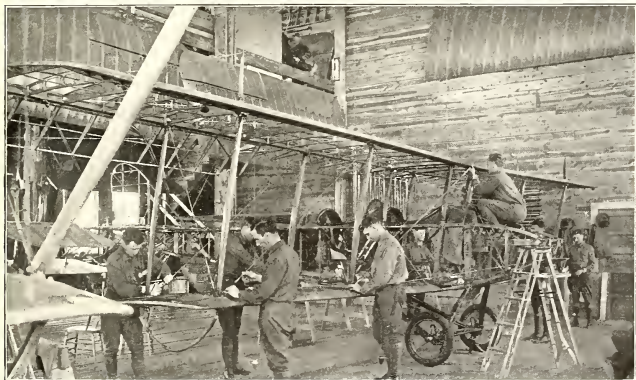
As the number of men assigned to the engineer officers' course was reduced an opportunity was afforded the Institute to reopen the Ground School. This school,

SECOND GROUND SCHOOL FOR CADET PILOTS

which was generally known as the Second Ground School for Pilots, was accordingly opened on May 13. As many of the subjects taught in the school differed radically from those taught in the engineer school, further changes were necessary in the staff. These changes were quickly effected and on August 1 the departmental heads were as follows: Administration, Professor C. B. Breed, President; J. C. MacKinnon, Assistant to the President; P. C. Leonard, Recorder; Military Studies, Lieutenant H. G. Knight, S. C.; Airplanes, F. V. du Pont; Engines, D. A. Fales; Signalling, and Aerial Observation, A. F. Murray; and Gunnery, Lieutenant G. W. Wyman, A. S. N. A.

In some respects the second school opened under much more auspicious conditions than the first. Material was abundant; indeed the supply of motors, planes and spare parts was imposing. Among the motors there were three twelve-cylinder Libertys, two Hispano-Suiza one-hundred-and-fifty-horsepower, three Hall Scott one-hundred-and-fifty-horsepower and seventeen others, all of well-known standard types, used either in training, scout, reconnaissance or pursuit planes. Moreover, these motors were equipped with an abundance of proper tools and spare parts. The army hangar boasted of two complete airplanes, including their engines, two more without engines, two Curtiss fuselages and one of Sturtevant make; also, many spare propellers and wings and a propeller balancing stand. The gunnery department was equipped with twenty machine-guns of Lewis and Marlin types. Had it been desired to do so, sufficient material was actually on hand to put seven planes in the air, each equipped with its proper type of engine and carrying a formidable armament.

In some respects, however, the outlook was not so bright. The human material which reported to this school showed very clearly the drain which was being placed upon the Nation's manhood. Professor Breed's official report states that: "Taken as a whole these men were not so well qualified either in education or personality as the candidates who entered the First Ground School, with the result that a larger proportion of them failed to graduate." The candidates reported at the rate of thirty a week, and the course given had been increased from eight to twelve weeks, thus bringing the number of men attending the Institute to approximately three hundred and sixty. This increase in the



INSTRUCTION IN ALIGNMENT—SCHOOL OF MILITARY AERONAUTICS

TECHNOLOGY'S WAR RECORD

length of the course had been necessitated by two factors: first, the men who now reported were no longer able to pick up the work as quickly as those of the previous class; second, it was no longer desired to obtain the maximum number of men at the maximum rate of speed. These men were being trained to pilot the great fleet of airplanes which it had been so confidently expected in the early days of the war were to "put out Germany's eyes," but as time went on this great fleet did not appear. The flying schools were overcrowded with pilots waiting only for practice in handling combat planes before taking their places on the field of battle and it therefore became increasingly difficult to place the men being graduated from the ground schools. At first they were sent to flying schools, but later they were sent to concentration camps and offered opportunity to join other branches of the service, notably, as aerial observers or balloonists.

By August, 1918, the Government was obliged to close some of the schools. The school which had been established at the Georgia Institute of Technology was the first to go; Cornell and Ohio followed. For the northeastern part of the United States it was necessary to drop either the school at Princeton or that at Technology. From the point of view of the War Department, Princeton had advantages over the Institute as a ground-training school for pilots, being better located relative to the principal flying fields and possessing greater dormitory and similar facilities. Most important, however, was the fact that should sudden expansion become desirable, it could be easily taken care of at Princeton, whereas at the Institute expansion was quite impossible, for the reason that so large a proportion of its facilities were absorbed by the Naval Aviation Detachment. Accordingly, the school at Technology was discontinued on September 7, 1918. Most of the students who were not graduated were transferred to other schools. Of the 327 men who had entered the school, 115 were graduated, ninety-six were discharged and the remainder were transferred to other branches of the service.

As one reads over the record established by the Institute in carrying on these schools, one cannot but be impressed by the efficient manner in which they were handled. Every possible difficulty was present, actually or potentially; there was lack of equipment, lack of room, human material of the most heterogeneous nature and throughout the constant demand for speed.

Yet every one of these difficulties was overcome. Material was improvised, temporary buildings were erected, changes in the curriculum were accomplished and changes in the instructing staff made to correspond. So great was the success of these schools that one feels compelled to ask, "Why was it that the Institute was able thus to accomplish results which a year before the opening of the war would have been deemed impossible?" The answer is simply this: as an educational institution we were prepared; our staff thoroughly understood the science of education; they understood not only how education was usually carried on, but also the basic principles of the art. They understood what could be omitted and what must be accentuated where it was necessary to train large numbers of men quickly. Moreover, we had had experience in the actual subject which we were to teach, namely, aeronautics. We had men in the Institute who understood airplanes not merely from reading of them or from mathematical discussions, but who had designed them, who had assembled them, who had tested the parts on tensile or compression machines or in the wind tunnel, who had carried on research work concerning them and who had actually driven the machines in the air.

The whole lesson of our three schools for the training of aviation personnel for the United States Army may be summed up in the words, "We were prepared and therefore we were able to do our full duty."

CADET SCHOOL FOR ENSIGNS

On the eighteenth of June, 1917, another government school was opened at the Institute. This school was known as the Cadet School, First Naval District, and its object was to provide training for candidates for commissions as ensigns in the United States Navy. The school was under command of Captain J. P. Parker, of the National Naval Volunteers,

CADET SCHOOL FOR ENSIGNS

an organization composed of those members of the Naval Militia who had qualified in certain requirements to serve as officers of the United States Navy in case of emergency. For some years previous to the outbreak of war the Naval Militia of Massachusetts had maintained schools intended to fit its members to qualify as officers in the National Naval Volunteers. These schools lasted a year and a half, the work being carried on during week-ends.

Just before the outbreak of war Captain Parker wrote to the Department of Naval Militia Affairs at Washington, suggesting that this course be rearranged as a four months' intensive program. The scheme was not at that time adopted, but a few days later, President Lowell of Harvard, President Maclaurin of the Institute and President Hollis of the Worcester Polytechnic Institute wrote to the Secretary of the Navy suggesting that a school be established to train college men for the Navy, similar to the army schools which were being established on the Plattsburg model. Captain Parker was then requested by the Navy Department to submit a new plan, and this plan which differed very little from the preceding one was at once adopted. The task of organizing the schools was by no means easy. The total appropriation allotted for the work amounted to only \$2000, no regular officers were available as instructors and the Navy Department was unwilling to guarantee commissions to the graduates.

Nevertheless, the school was organized. The Institute offered to supply quarters and the cadets occupied a wing of the Institute building which, from the chief name on the pylon, became known as the U. S. S. "Newton." Captain Parker himself took charge of the school as superintendent and succeeded in obtaining for assistants a lieutenant and four ensigns, all graduates of the Massachusetts Nautical School, or of the Naval Militia School for National Volunteer Officers. Books were obtained from various sources and work was started on June 18 with a class of fifty-three men, of an average age of twenty-four years, selected from no fewer than five hundred applicants. Of these all with a single exception were college graduates.

Advantage of this fact was taken in laying out the curriculum which was based upon the theory that the men should receive approximately the same training as that given at Annapolis, but that their previous education could be taken as equivalent to about three-quarters of the work given at that institution. The subjects, therefore, taught in the school comprised those dealing with the theoretical phases of navigation, seamanship, charting, gunnery and naval regulations, while disciplinary drill and signaling were also taken up, the curriculum as a whole being so arranged as to cover all subjects required of ensigns for deck duty under General Order No. 153 of the Navy Department, as well as some subjects required for lieutenants (junior grade) and lieutenants. Toward the end of the course, which lasted four months, some practical instruction was also given, including one week at the target range, one week at sea on the U. S. Torpedo-Boat "Rogers" and one week in harbor on the U. S. Cruiser "Salem."

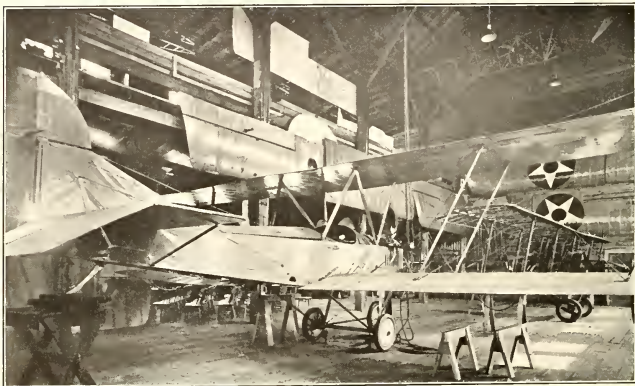
Of the first class forty-six were graduated and having successfully passed the examinations for ensigns, were immediately distributed to their stations, ten going to shore duty, ten to battleships, twenty-three to one-hundred-and-ten-foot submarine chasers and three elsewhere. Of this first class no fewer than twelve subsequently won the Navy Cross. The school was so successful that it was greatly increased in size. The second class numbered one hundred and fifty and it became necessary to move to the Walker Memorial.

About the same time the Naval Aviation Detachment also was largely increased so that there was no longer room for both schools at the Institute. Inasmuch as the School for Cadet Ensigns required little mechanical apparatus, President Maclaurin made arrangements with President Lowell of Harvard, by which the school could receive better facilities there than at the Institute, while the quarters thus made available would take care of the increase in the Naval Aviation Detachment. As a result of this decision it became necessary for the School for Ensigns to move to Harvard where it continued to expand and became a very important source of officer material. Nearly eleven hundred men attended it at one time or another, of whom approximately nine hundred were commissioned into the Navy, while the Navy Department established similar schools in various parts of the country.

TECHNOLOGY'S WAR RECORD

NAVAL AVIATION DETACHMENT

Toward the close of July, 1917, the Navy Department requested the use of a large portion of the Institute for the purpose of training naval aviators. The success which had attended the schools for military aeronautics at the Institute had already attracted attention in Washington. Alexander Klemm, '16, instructor in aeronautics at the Institute, had for some time been giving evening lectures which had been largely attended by pilots from the Squantum Aviation Station, and it is generally believed that these lectures had made a very favorable impression on the naval authorities. It seems not impossible that the excellent work being done for the Navy Department by Mr. Klemm's predecessor, Commander Hunsaker, '12, may have also influenced the authorities. In any case, Secretary Daniels wrote on July 7, 1917, asking President Maclaurin whether a school



INTERIOR OF THE DU PONT AIRDROME

could be established at the Institute for naval aviators similar to that already in operation for the Army. Doctor Maclaurin replied at once in the affirmative, and a definite proposal was submitted to the Institute by the Navy Department on July 17. This proposal was accepted at once and by July 21 everything was in readiness. Work actually commenced on July 23.

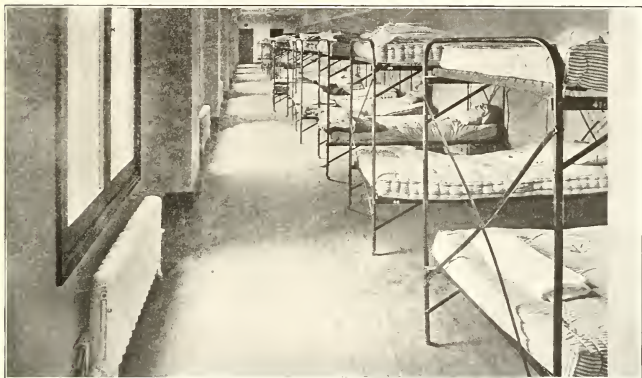
The new school was organized upon lines quite similar to those employed in the army school. Lieutenant (later Lieutenant-Commander) E. H. McKitterick, U. S. N., was appointed commandant, while Professor Peabody became president of the Academic Board and Professor Harrison W. Smith, '97, acted as dean. As Professor Peabody was also head of the army school, Professor Smith was responsible for much of the administration. Those in charge of the various departments were as follows: Seaplane Motors, Dean A. Fales, '15; Signalling, H. N. Carlson, '13; Aeronautics, Alexander Klemm, '16; Meteorology, Professor Frank Waldo; Calisthenics, J. A. MacDonald, '16; Military Science, Leicester F. Hamilton, '14; Gunnery, G. D. Haskell, and Seamanship and Navigation, Harrison W. Smith, '97.

The school was the first of its kind to be established and was the only one estab-

NAVAL AVIATION DETACHMENT

lished on the Atlantic Coast. Later a more elementary school was established at Dunwoody Institute, Minneapolis, and still later a number of officers were sent from Technology to organize a new school at Seattle.

When first established the school consisted of a ground school for pilots quite similar to that which was being carried on at the same time in the Army School for Military Aeronautics. As time went on other schools were added until in addition to the Ground School there was a School for Inspectors, a School in Aerography and a Receiving Ship School, in which the candidates were given a certain amount of training preparatory to entering the more advanced schools. Each fortnight a class was graduated from the ground school and simultaneously another class entered. Thus, with an eight weeks' course, four classes were always in session; and with a ten weeks' course, five classes were in session.



BALCONY OF WALKER MEMORIAL FITTED AS SLEEPING QUARTERS

These classes increased gradually from about fifty to nearly two hundred student-officers, so that the total enrollment at any given time came very nearly to a thousand.

At the inception of the schools the Institute was chiefly responsible for the academic instruction, but this responsibility was gradually shifted until it rested almost entirely upon the naval personnel. It may be said, however, that the change from Institute instructors to naval instructors was not so great as might at first seem, for it must be remembered that many Institute and other instructors and professors were entering the Navy, and the Navy Department, with excellent judgment, was assigning these men to educational work. As a result, out of one hundred and fifty-six men who at one time or another served on the academic staff, forty had been or were connected with Technology either as instructors or as students, while a number of others had been instructors elsewhere.

The main Technology buildings were used by all four schools for a greater part of their lecture and laboratory work. In the Aerography School, however, considerable instruction was also given at the Blue Hill Observatory. The Receiving Ship School also occupied the "Tech Block" on Massachusetts Avenue, which was leased by the Institute, and

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in addition Walker Memorial, the Institute's dormitories and temporary buildings described later (see page 53) were utilized.

The Ground School was established July 23, 1917, and remained in session until January 18, 1919. As in the army school it dealt with those matters of theoretical instruction with which every aeronaut should be acquainted before undertaking practice in actual flight and was divided into two sections, dealing respectively with heavier-than-air and lighter-than-air apparatus. Upon arrival at the Institute the men were at first given work in calisthenics, athletics, close-order drill, seamanship, signalling and navy regulations, subjects such as would fit them physically for the work which was to follow and would inculcate a proper spirit of discipline. These courses were followed by others designed to fit them for the special duties which they were to take up, such as observation, bombing, gunnery, navigation, aeronautical engines, electricity, theory of ballooning, aerography, rigging and theory of flight. The equipment available for instruction was very complete, for it included five seaplanes and one flying boat, together with forty aero engines of different types, including eleven Libertys, four Hall Scotts and two Hispana-Suiza rotaries.

As fast as the pilots completed their courses they were sent to the naval aviation station at Squantum or similar flying school elsewhere and thence abroad.

Just as in the case of the Army, the Navy soon found that pilots alone would not produce a satisfactory Aviation Corps and that it must train officers who would be competent to oversee the construction, maintenance and transportation of planes. Indeed, the Navy seems to have realized this somewhat earlier than the Army, for arrangements were made and an Inspection School opened October 21, 1917. It was divided, like the Ground School, into two closely related schools in one of which inspectors specialized on the structure of the aeroplane and dirigible, while in the other they specialized upon the engine. Naturally this course differed somewhat from that taken by the pilots. The study of navigation and gunnery was replaced by such subjects as propeller and radiator design, metallurgy, electricity and physical measurements; while a considerable portion of time was also spent in visiting factories engaged in the manufacture of aircraft or aircraft parts in the immediate vicinity. The course was completed by work in actual inspection in the great airplane plants at Keyport, N. J.; Buffalo, N. Y.; Pittsburgh, Penn.; and Washington, D. C.; after which, if the candidates proved themselves efficient, they received commissions as ensigns.

By the winter of 1917 still further additions were necessary. Experience in Europe had proved that the navigation of seaplanes was affected by the weather to an even greater extent than was the case with the ordinary land machines. Accordingly it was necessary to train a certain number of officers in the study of the upper regions of the atmosphere, weather forecasting and similar work. For this purpose a School of Aerography was established on December 22, 1917, which continued in operation until the close of the schools on January 18, 1919. Most of the instruments used were loaned by Harvard University though the Institute supplied some of the smaller equipment. The course at this school differed radically from that carried on at the others since the work was primarily connected not so much with airplane construction or flying as with forecasting weather conditions. Stress was accordingly laid upon the use of aerographic instruments, the structure of the atmosphere and methods of forecasting. The information available regarding the upper strata of the atmosphere is still somewhat meagre and as a result it was possible for the student-officers to do a very considerable amount of research work with the object of improving the methods of making pilot-balloon observations. It was also possible to design and improve special aerographic instruments for the use of the Chemical Warfare Service of the Army.

As the schools continued to expand a point was reached where the preliminary work relative to discipline and physical training became quite a separate department. In recognition of this fact a Receiving Ship School was opened on March 18, 1918, and continued until November 19, 1918. This school performed the duties of a receiving ship, that is to say, it served as a place where the incoming candidates could go through the necessary red tape connected with the induction into service, could receive their uniforms,

NAVAL AVIATION DETACHMENT

be instructed in the rudiments of naval courtesy, close-order drill, discipline, seamanship and enough of naval regulations to put them in a position, upon entering more advanced schools, to take up their work with the mental attitude of naval officers. Every fortnight a class was graduated and admitted to the ground school. The chief function of this school was to determine the fitness of each student as officer material and methods of drill and discipline were accordingly adapted to this end.

During the summer of 1918, due to other activities, notably the formation of a school for aeronautical engineers (see page 26), Professor Peabody's duties continued to increase to such a point that he was able to give but little time to the administration of the Naval Aviation Detachment. He accordingly recommended that Professor Harrison W. Smith, '97, who had been serving as dean of the Academic Board, should be appointed



INTERIOR OF THE RECREATION BUILDING OF THE NAVAL AVIATION DETACHMENT

to succeed him as president. This action was finally taken on September 1, 1918, and Professor Smith continued as president until the close of the school.

With the formation of the Receiving Ship School the Naval Aviation Detachment reached its greatest expansion, there being fifteen hundred aviators training at one time. The Institute presented a most military appearance, since all day long groups of army or navy cadet aviators could be seen going through calisthenics, quickening exercises, gas-mask or close-order drill. All day long from the gunnery sheds came the rattle of machine guns, while in the Vassar Street laboratories roared some fifty motors of various types running on testing blocks.

Variety was lent to the uniforms of olive drab of the army and navy aviators by the arrival of a squad of candidates for the Marine Corps, Aviation Section, and during the summer of 1918 by a detachment of twenty Canadians. These young men had been studying in similar schools in Canada to take up work upon the seaplanes of the British Royal Air Force. The Canadian schools, however, had become overcrowded and it had been necessary to transfer candidates elsewhere. The men who were working on lighter-than-air craft were sent to England, but those who were working on heavier-than-air machines were assigned to the Institute. Their uniforms, while quite similar to those of

TECHNOLOGY'S WAR RECORD

our own naval aviators in cut, were of dark blue serge, which made them conspicuous among their olive-drab companions.

Lieutenant-Commander McKitterick was ordered away from the Institute in the early part of 1918 to organize and take charge of the new Seaplane Station at Chatham, Mass. He completed this work and somewhat later was sent abroad. He was placed in charge of an aviation base at Lough Foyle on the northern coast of Ireland, where he saw much interesting service since his command was assigned to patrol work about the northern entrance to the Irish Sea where brushes with submarines were almost daily occurrences.

Lieutenant-Commander McKitterick was succeeded by Lieutenant-Commander Robert W. Cabaniss, under whose direction the detachment became a model in discipline and in the individual appearance of its personnel.



NAVAL AVIATION DETACHMENT ON PARADE

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Lieutenant-Commander Cabaniss published a series of orders which were put up in pamphlet form and furnished each newcomer, and this pamphlet as a guide for the proper conduct of cadet aviators could well be regarded as a model. The best part of it, however, was the fact that every rule and regulation laid down therein was enforced with the utmost rigor and was strictly lived up to by the Commander himself. Cabaniss was succeeded by Lieutenant-Commander Harold C. Van Valzah, under whom the work of developing the esprit and appearance of the unit was continued. A band was organized and at sundown formal retreat was held, the entire detachment parading on the drill field between Walker Memorial and the Institute buildings, while hundreds of spectators from Boston and Cambridge stood grouped along the Charles River Road about the Walker Memorial or sat in touring cars parked on the drive.

Another activity of the aviators which attracted attention of the general public was the instruction in swimming and in seamanship, which was carried on practically all day long at the landing in front of Walker Memorial. At almost any time the passerby might see from fifty to a hundred young men engaged in every variety of water sport and many of these men were athletes of national reputation. At the same time from six to

NAVAL AVIATION DETACHMENT

eight naval cutters were cruising here and there in the basin either under sail or engaged in rowing contests.

While the work of the naval aviators was of an intensive nature it was not entirely without features which provided recreation, nor were their activities confined to study and military training. Many of the cadets were men of considerable wealth. As a result the detachment took a very prominent part in the various Liberty Loan drives, notably that of the third, in which the detachment had been assigned a quota of ninety thousand dollars. When the returns were completed, it was found that the quota had been exceeded five times, the total being a little over \$450,000.

The detachment also included a considerable number of well-known collegiate and professional athletes and the contests which were organized either between the aviators and outside organizations or between various sections of the detachment were generally



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CEREMONY OF RETREAT—NOTE THE LIBERTY LOAN FLAG WITH THE STARS,
SHOWING OVER-SUBSCRIPTION

affairs of the highest order. At the meet of the New England Amateur Athletic Union, which was held at Tech Field, September 18, 1918, the naval unit won first place over all other organizations entered, one of its members, Edward E. Myers, breaking the New England record in the pole vault, when he cleared the bar at twelve feet one and one-half inches. Later a contest took place between the Main Ship (the more advanced schools) and the Receiving Ship, which provided the onlookers with much entertainment. This affair was a typical military meet, including such events as a one-mile race for naval cutters, wall scaling, pushball, tug-of-war and the farcical shoe race.

The spirits of the detachment were always high and many other means of amusement were found. An orchestra was organized and amateur theatricals given.

A special building was fitted up as a recreation building and hostess house, presided over by Mrs. King of the Massachusetts Institute of Technology War Service Auxiliary, where the student-officers were able to spend such leisure as they had with their friends and relatives. The War Service Auxiliary also fitted up a special recreation room in the Rogers Building on Boylston Street as a meeting-place for aviators visiting the city, and at this "hostess room" each Sunday afternoon during the fall of 1918 tea was served.

TECHNOLOGY'S WAR RECORD

As the naval aviation plans had gone forward more in keeping with the original program than had those of the Army there was at no time need to decrease the number of men under instruction. On the contrary the number grew steadily up to November 11, 1918. The schools were not at once discontinued upon the signing of the armistice but remained in operation until January 18, 1919.

During the time that the Naval Aviation Detachment was at the Institute it had been the principal source of ground training for pilots, aerographic officers and inspectors for the United States Navy. During this time 4,911 student-officers received instruction, 3,622 were graduated, 728 were transferred elsewhere and 24 died. The history of the Naval Aviation Detachment at the Institute is altogether one of the most satisfactory which can be recorded in connection with the war. The co-operation between the naval and the Institute authorities throughout was all that could be desired. The morale was high; indeed, so popular was the service that there was practically always a waiting list of between four and five hundred candidates. The men seem to have been graduated from the course with the most pleasant recollections of the Institute, since they later formed an alumni association and requested affiliation with that of Technology.

Once more it seems proper to ask, "Why was it that this school also proved so successful?" and again to reply that it was because we were prepared. Not only were we prepared as to general principles of education, the technique of aeronautics, instruction in navigation and the use of meteorological instruments, but Professor Peabody, who, as we have seen, was the first president of the Academic Board, was thoroughly acquainted with the methods of the Navy, many navy officers had become accustomed to the methods of the Institute, the co-ordination of the naval and academic needs of the course proved a comparatively simple matter and the result was most gratifying to all concerned.

SCHOOL FOR AERONAUTICAL ENGINEERS

The success which attended the Institute's schools for military and naval aviators appears to have made a very strong impression in Washington and, as a result, further opportunity for service was soon offered. This opportunity came in the form of a request from the War Department, in the spring of 1918, that the Institute establish a school for officers of the Army where they might receive in condensed form the instruction regularly given at the Institute in the Course in Aeronautical Engineering. The request was complied with at once and arrangements were made by which members of the Department of Construction and Repair of the United States Navy could also participate in the work.

The first school opened on May 13, 1918, and continued until September 7. It was conducted under the direction of Professor C. H. Peabody, who was directly in charge of the strictly aeronautical work, being assisted by Professor E. B. Wilson of the Department of Physics, and Messrs. Warner and Denkinger. Instruction relative to the design of propellers and wing surfaces was cared for by the regular staff in aeronautical engineering, while that pertaining to engines and the selection and testing of materials was looked after by members of the mechanical engineering staff, notably Professors Harrison W. Hayward, T. H. Taft and I. H. Cowdrey and Mr. Dean Peabody, Jr. In addition Howard B. Luther, '08, a Lieutenant in the United States Navy, and Thomas L. Blackmore, '17, who were both in government service in Washington, were detailed to the Institute to give special lectures in connection with the course.

The course was so arranged that the men received instruction not only regarding heavier-than-air machines, but also in dirigibles and similar lighter-than-air apparatus. Similarly, in each class of matériel, training was given not only in theoretical design, but also in accepted practice and construction. To enable the men to study all phases of construction under actual working conditions, excursions were arranged to a number of works throughout the United States, where the manufacture of each part and the final assembling of the machines could be seen in detail, these excursions occupying altogether about two weeks.

In this first school there were twenty-five army and six navy officers in attendance. No diplomas were given but those who completed the course satisfactorily received certifi-

SCHOOL FOR AERONAUTICAL ENGINEERS

icates similar to those given in the military schools for instructors and specialists at Fort Sill and elsewhere. The entire class returned to service and most of its members in both the Army and Navy were at once assigned to work dealing with airplane design and production.

So successful was the school that a new course was arranged for, which began on October 7 and continued for fifteen weeks. The new school was again in charge of Professor Peabody, but considerable changes were made in the instructing staff, many of the subjects being taught by graduates of the previous school. The instructing staff of this school was therefore as follows: Professors E. B. Wilson, H. W. Hayward, G. B. Haven;



STUDENT-OFFICERS IN AERONAUTICAL ENGINEERING REMOVING ENGINE FROM AIRPLANE FUSELAGE

Major F. E. Humphreys; Lieutenants Aldrin, Luther, Daumont, Miller; Ensign Brown; and Messrs. Warner, Denking, Norton and Hanscom.

The work carried on was practically identical with that of the preceding course and was attended by forty officers of the Army and six of the Navy. Inasmuch as the course extended long after the armistice, its graduates in many cases did not return to active service but were mustered out shortly after the completion of the course.

The service rendered the Nation by the establishment of these courses was probably not as great as would have been the case had it been possible to enter upon the work at an earlier date. At the outbreak of war the number of properly qualified aeronautical engineers in the United States was exceedingly small and this fact in itself undoubtedly

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had a very great bearing on the failure of our aviation program generally. Possibly had the intensive course at the Institute been arranged a little earlier this situation might have been considerably relieved. As it was, before the Institute was able to accomplish any appreciable increase in the supply of trained men the armistice intervened. Nevertheless the school forms an exceedingly interesting incident, for it demonstrated once more the ability of the Institute in time of emergency to supply the Government with men possessing technical training of the type most urgently needed.

Another phase, which unfortunately cannot be made public, is the experimental work performed in the wind-tunnel. Wind-tunnels of the size and capacity of that of the Institute are still very rare in the United States, and upon the experimental value determined from them depends the speed and safety of every airplane which takes the air. It is not surprising, therefore, that the Government has judged the Institute installation as of such importance that a contract was concluded by which the Government remains in full control of it; while the Course in Aeronautical Engineering for officers of the United States Army and Navy appears at the present moment not unlikely to become a permanent feature of the Institute.

UNITED STATES SIGNAL CORPS SCHOOL FOR RADIO ENGINEERS

The Aviation Schools established at the Institute and at other American colleges had proved such a success that in the early part of the year 1918 it was decided by the War Department to extend the system to other branches of Signal Corps training. Accordingly, in January, 1918, Major-General Squier, Chief Signal Officer of the United States Army, called a conference of representatives of the eastern technical colleges at Washington, and requested the Institute and other technical colleges to establish special and intensive courses in radio engineering.

In accordance with this request, the Institute, in co-operation with Harvard University, opened such a course in February, 1918. The work was so arranged that the lectures and the laboratory work were divided between the Institute and Harvard University, an arrangement which was most satisfactory since it permitted the classes to use what was probably the most complete collection of equipment in the United States at that time. Professor A. E. Kennelly at Technology and Professor E. L. Chaffee, '07, at Harvard were in direct charge of the work, the object of which was to train a body of students in electrical engineering to become experts in radio construction and maintenance. The work included a course of fifteen weeks' duration averaging thirty hours a week of classroom, lecture and laboratory work.

Seventeen fourth-year students, mostly from Course VI, registered for the work, and though they had not completed their undergraduate studies the Institute Faculty ruled that satisfactory completion of the courses in radio engineering would be accepted in lieu of the usual requirements for graduation. Of the seventeen men who took the course all graduated, sixteen being commissioned in the United States Signal Corps. One took up essential work of civilian nature.

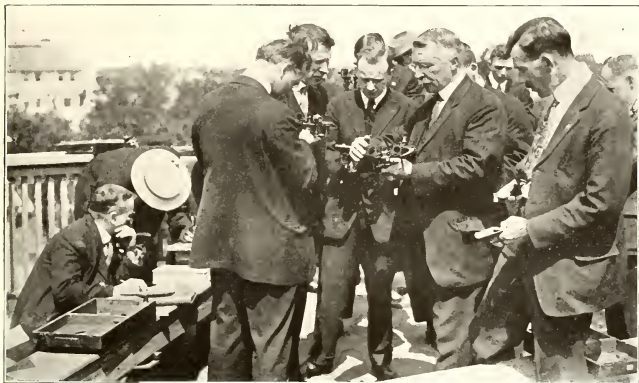
The school was so successful that a second course of the same nature was arranged. This course was carried on during the summer of 1918 under the auspices of Mr. Haines, a graduate of the first course, at Technology and Mr. Field at Harvard, the work being equally divided, as before, between the two institutions. About twenty-five students undertook the work, of whom some twenty-one were graduated and entered the government service.

SPECIAL CLASSES FOR OFFICERS OF THE SANITARY CORPS

In addition to the Aviation and Radio Schools there were some fifteen officers of the United States Army who pursued courses in intensive training at the Institute during the war. These officers were nutrition officers belonging to the Sanitary Corps who received instruction under Major Samuel C. Prescott, '94. Major Prescott had been given charge of certain phases of the work of training officers of the Sanitary Corps to fit them to serve as experts on matters relative to food and nutrition.

As other quarters were not immediately available two classes of these officers were

UNITED STATES SHIPPING BOARD SCHOOLS



DEAN BURTON OPENING THE FIRST SCHOOL FOR DECK OFFICERS AT HARVARD UNIVERSITY OBSERVATORY

sent to the Institute, where each received a week's intensive training, which covered lectures on various kinds of food, methods of preservation, methods of inspection and methods of handling. The course was originally intended to include a certain amount of laboratory work but such was the demand for men that it was impossible to take sufficient time to carry this out; moreover many of the men assigned as students had already had excellent training in laboratory procedure.

At the close of each course the classes inspected the largest food-handling stations in the vicinity, notably Camp Devens, the Quincy Cold Storage Plant and the Fish Pier.

After two classes had attended the school at the Institute Major Prescott was moved to Washington. The classes were carried on there for some time, until permanent quarters were made available at Camp Greenleaf, where the work continued to enlarge until classes of twenty-five men at a time were ultimately under instruction.

UNITED STATES SHIPPING BOARD SCHOOLS

It will be remembered that at the outbreak of war it was not certain that the United States would take an active military part. It was, however, well understood that it would be called upon to aid its allies in the field of industry, especially in the matter of shipping. To use the phrase common at that time, it was proposed that the United States should "build a bridge of ships." The first proposal contemplated that a thousand vessels of three thousand tons should be constructed and much discussion arose as to whether they should be built of wood or of iron. An important question, however, relative to these ships seems at first to have been overlooked, namely, that of finding crews, for at that time there were scarcely sufficient seamen and licensed officers to man the pitifully small merchant marine already existing. Green men could be trained as seamen with comparative rapidity, but to find competent officers was a more difficult problem. In accordance with the law, a ship of three thousand tons should be officered by a master and three mates, while each engine room should be taken care of by a chief and three assistants. Accordingly, if the United States was to construct a thousand new ships, eight thousand

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additional officers must be trained and licensed before these ships were ready to put to sea.

Henry Howard, of the Class of 1889, appears to have been the first man to grasp this fact and act upon it. He saw at once that men must be trained and worked out a scheme to accomplish this result. His plan was brought to the attention of the Shipping Board by whom it was accepted, Mr. Howard being appointed Director of the Recruiting Service of the United States Shipping Board, with authority to recruit and train both seamen and officers. His work in the recruiting and training of seamen is described on page 329; in this place only his plan for the education of officers will be considered. This plan was to establish free schools in all important American seaports, where men with practical sea experience could obtain theoretical instruction, notably in navigation and marine engineering, and thus become competent to obtain officers' licenses.

To organize these schools men with an exceptional combination of qualities were required. It was necessary that they should be experts in the subjects taught, that they should be experienced educators and that they should possess initiative and capacity for organization. In order to find the proper men Mr. Howard, being a Technology man, naturally turned to the Institute and requested President Maclaurin to recommend two men capable of taking over the work of organizing two classes of schools, one for deck officers and one for engine-room officers. Doctor Maclaurin recommended Dean A. E. Burton, Professor of Topographical Engineering, and Professor Edward F. Miller, head of the Mechanical Engineering Department. Dean Burton and Professor Miller had had more experience in connection with the sea than is generally known. Dean Burton had formerly been in the service of the Coast Survey. For several years he had conducted a course in navigation at the Lowell Institute and he had accompanied Admiral Peary on one of his earlier arctic voyages. Professor Miller had done a large amount of work in connection with shipping as a consulting engineer and had conducted tests on steam boilers and engines on nearly every form of vessel from a torpedo boat to an ocean liner. Both men had demonstrated their ability as educators and organizers in their work at the Institute.

The task which they were called upon to undertake was by no means easy. For many years it had been an axiom among seafaring men that a man must serve nine years before the mast before he was capable of becoming an officer. It is true that this condition did not exist in the old clipper-ship days, for it is a matter of record that American skippers of that date were generally men who had been graduated from colleges or academies and whose practical training had been comparatively brief. The clipper days, however, had become more or less a memory and the oldest salts were most pessimistic regarding any scheme for fitting men to become competent navigators or engineers by means of an intensive course of theoretical training.

Despite unfavorable criticism and despite the fact that no Congressional appropriation was yet available, both Dean Burton and Professor Miller started work at once; in fact, the first school of navigation opened in May, 1917, although no appropriation was made until the first of June. This school, which was inaugurated under the immediate supervision of Dean Burton, was located in Cambridge, and, through the generosity of Professor Willson of Harvard University, the classes were able to avail themselves of the Student Astronomical Laboratory on Jarvis Street. Its success encouraged the Shipping Board to open immediately more schools along the Atlantic Coast. Accordingly in June, 1917, schools were established by Dean Burton in Maine at Machias, Rockland, Boothbay and Portland; at New Bedford, Mass., and Greenport, L. I. In July and August, 1917, Mr. Howard directed him to establish schools along the Atlantic, Gulf and Pacific Coasts, and also the Great Lakes, and before the end of August there were navigation schools in good running order at Providence, R. I.; Philadelphia, Pa.; Atlantic City and Cape May, N. J.; Baltimore and Crisfield, Md.; Norfolk, Va.; Charleston, S. C.; Savannah, Ga.; Jacksonville, Fla.; Mobile, Ala.; New Orleans, La.; Galveston, Tex.; San Diego, San Pedro and San Francisco, Cal.; Portland and Astoria, Ore.; Tacoma and Seattle, Wash.; Duluth, Minn.; Chicago, Ill.; Cleveland, Ohio; and Buffalo, N. Y. In order to establish these schools as rapidly as possible, Dean Burton personally super-

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vised the opening of each. It was necessary for him to secure suitable quarters, to obtain equipment and instruments, a matter of great difficulty at that time, and, most difficult of all, to secure competent instructors. This required a rapid traverse of the whole coast line of the United States and the selection of men properly qualified to teach theoretical navigation to practical seafaring men with very limited mathematical training. The instructors were secured from all walks of life; they included astronomers, explorers, old sea captains, yachtmen, school teachers and college professors, and, as might be expected,



SCHOOL FOR DECK OFFICERS, TAMPA, FLORIDA United States Shipping Board

there were a number of Tech men, including the following: Professor A. G. Robbins, '86, Professor George L. Hosmer, '97, Professor Harrison W. Smith, '97, Professor John W. Howard, '03, Oric Bates, '07, Bradley Jones, '10, William M. Angas, '17, and Rudolf Beaver, '18. Naturally the most successful instructors proved to be men who had done some teaching and had also had actual experience at sea.

In establishing these schools the Dean was greatly aided by Mr. Howard. The latter arranged for a publicity campaign which preceded the establishment of the schools in each port, securing for this purpose the services of Mr. Winfield Thompson of the *Boston Daily Globe*. Mr. Howard also arranged for a local committee of the prominent business men in each port, who should interest themselves in the welfare of the schools, and he also divided the coast line of the United States into seven districts and appointed

TECHNOLOGY'S WAR RECORD

a district chief for each of these sections. The district chiefs were men especially distinguished for their executive ability and patriotic spirit. Their chief duty was to keep up public interest in the schools in their respective districts and to see that outside influences did not interfere with the work. Dean Burton was responsible not only for the location of the schools and the choice of quarters and personnel, but also for the courses of instruction given throughout the United States. In December, 1918, he was called upon to make a personal inspection and report on all the schools, and as a result made a second circuit of the boundary of the United States; in September, 1919, he was called upon to make a further inspection of the schools located on the Pacific and the Great Lakes.

Each school continued in existence as long as suitable candidates were available. In some of the smaller seaports the supply was soon exhausted and new schools were then established at other points with the same equipment. In October, 1917, a large school was opened in Gloucester, Mass., one in Wilmington, N. C., and another in Los Angeles, Cal. In November one was established at Tampa, Fla., and one at Bellingham, Wash. A flourishing school was also opened at Detroit, Mich., and the small schools at Cape May, Crisfield, Savannah, San Pedro and Charleston were closed. Two private schools in New York City were added to the list; at the Seamen's Church Institute and Utmark's School. Brooklyn and Jersey City schools were also added. It will therefore be seen that over forty schools for the free teaching of navigation were opened, but at no one time were there more than thirty in operation. After the armistice the number of schools was cut down to fifteen and at the present time (November, 1919) these fifteen are still at work, with an average of twenty to twenty-five pupils a month in each school.

The men who presented themselves for instruction proved a most interesting assemblage. Some were lads whose sea experience consisted chiefly in sailing catboats and knockabouts, while others were old salts who in their youth had reefed sky-sails on the last of the clippers. The history of some of these men casts a very interesting light on the fate of our former merchant seamen. One old chap was discovered on the quays of New Orleans bossing a gang of stevedores. Few people knew that he had ever seen a ship other than flat-bottomed river steamboats, yet when he presented himself to the



CLASS OF DECK OFFICERS AT THE INSTITUTE

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UNITED STATES SHIPPING BOARD SCHOOLS

inspectors, he showed a record covering practically all the navigable waters of the globe. Another old salt some sixty-two years of age, on reporting was greatly surprised to hear that he must take a physical examination. When called before the examining board, he looked them over and then, before anyone could guess what he was about to do, turned a hand-spring, announcing as he lit once more on his feet, "Thar, how'll that do?" Still another old fellow was asked whether he didn't consider that a man of his age had done his share and whether he would not feel happier at home running a war garden than trying to take fabricated freighters through the submarine zone. He turned upon the examiner and with a tone of withering contempt replied, "There ain't never been a ship built that sails on the water nor under it as can scare me. The only thing I'm afraid of is these gol-durned examinations in mathematics." The Gloucester School, in particular, was attended by an interesting assortment of characters, for instance Captain Peter Grant, who for twenty-seven years had commanded a schooner of the fishing fleet, and Captain Dan McDonald, who, it was said, could buoy a trawl on the Grand Banks before a hurricane and could come back afterwards and find it and who had never been known to take an observation on the sun or stars. Indeed this entire class were inclined to believe that nobody but a lubber ever would think of trying to find his way around the sea by the sun, for a real seaman ought to be able to know his position by the sea itself. Once they had become interested, however, the rivalry was keen and these old skippers proved extraordinarily apt pupils.

The original school in Cambridge, soon after its opening, was moved to the Institute, where it still continues to flourish. The course of instruction is about six weeks in length and from this school alone over twelve hundred men have secured officers' licenses.

The other schools throughout the country have also served their purpose well and it is now a matter of history that, despite the lack of trained navigators at the opening of the war, the merchant marine was never handicapped by lack of competent deck officers. The total number of graduates from the navigation schools up to December 1, 1919, was considerably over six thousand, of whom four thousand, nine hundred and twenty received licenses as deck officers. The schools for deck officers may be said, therefore, to have quite fully satisfied the predicted requirements for officering the thousand proposed ships.

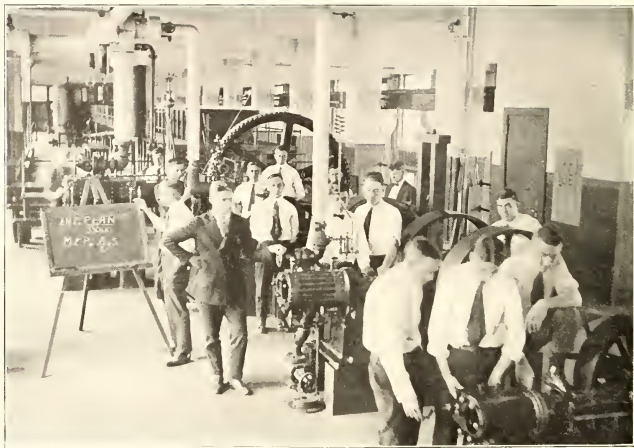
Professor Miller's task as compared with that of Professor Burton was a simple one. Schools for training stationary engineers could be utilized for training marine engineers and many schools thoroughly equipped for this purpose already existed. Professor Miller accordingly began by asking the co-operation of different technical schools and universities. In most cases this was immediately accorded and schools were quickly organized in localities most suitable for the work. The method used in selecting these localities can best be given by quoting Professor Miller himself. "In every instance we had to select a school which was on the waterfront and which had a steam laboratory or steam machinery available for use. * * * There was such a demand for a school in Philadelphia that, under the direction of Mr. Howard, I went to Philadelphia and arranged for the establishment of a school on a boat which was secured for the purpose. This boat was tied up at a government wharf and accommodated as many as one hundred and sixty students, who used the boat as a classroom. In nearly every instance the people selected to look after the work of the various schools were trained teachers and the method of instruction was left entirely in their hands. The work which they were to cover was outlined in detail and the type of questions which the men were likely to be asked was sent to each instructor, who was to give the men a thorough grounding in fundamentals so that they would be competent to handle questions along lines similar to those sent in the syllabus."

In July, 1917, in accordance with this policy, schools were started at Massachusetts Institute of Technology, Armour Institute of Technology (Chicago), Case School of Applied Science (Cleveland), University of Washington (Seattle), Tulane University (New Orleans), Johns Hopkins University (Baltimore), Stevens Institute of Technology (Hoboken). The school at Johns Hopkins University gave both day and evening courses, but the other schools conducted only the day course from nine until four. Later schools were established at Philadelphia Marine Engineering School (instruction given on board

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the "John Weaver" with headquarters at the Philadelphia Bourse), Seamen's Church Institute (New York), Dickinson High School (Jersey City), Pratt Institute (Brooklyn) and the University of California (Berkeley). As in the case of the Schools for Navigators, these schools were worked until the local material was exhausted. That at the Stevens Institute was discontinued in December, 1917, while in April, 1919, those at the Pratt Institute and Dickinson High School were also closed, but simultaneously a new school was established at the Polytechnic Institute (Brooklyn) with Professor E. F. Church in charge. Since this date eight schools have been in continuous operation.

The course of study in these schools as outlined by Professor Miller was to give four weeks of intensive training. At the expiration of the course the candidates who had



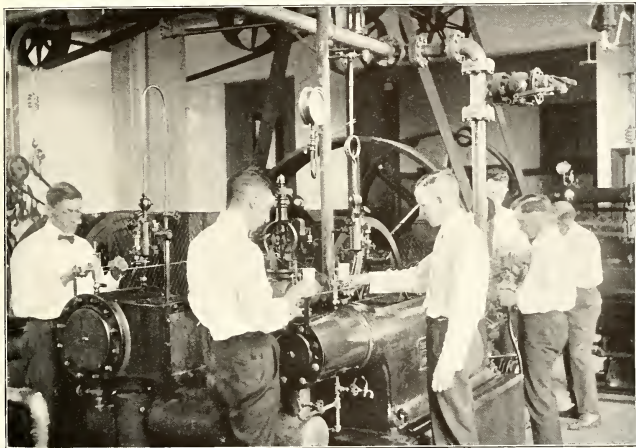
CLASS IN VALVE SETTING—SCHOOL FOR ENGINE-ROOM OFFICERS AT THE INSTITUTE

already had sufficient sea experience took an examination from the United States Steamboat Inspectors, for an engineer's license, either chief, first, second or third assistant, according as their previous training might warrant. Men who had had no sea service were placed on board vessels as oilers, watertenders or cadet engineers, until they had served from three to six months, after which time they took the United States Steamboat Inspectors' examination for an engineer's license.

Perhaps no better example can be given of the manner in which the schools operated than that which was established at Technology under Professor Miller's direct supervision. The instructing staff consisted of Professors E. F. Miller, '86, and Theodore Taft, '01, and Messrs. William H. Jones, '09, Kenneth C. Robinson, '10, S. B. Blaisdell, '18, Ralph Crosby, '18, and DeWitt M. Taylor, '06. Every morning the men attended two lectures of about an hour's duration, which were generally illustrated by lantern slides. At the close of each lecture the class adjourned to the drawing room, where

UNITED STATES SHIPPING BOARD SCHOOLS

each man working at his desk wrote up the details of the lecture which he had just attended. While doing so, the instructors circulated about the room, helping men who were found to need assistance. This was particularly necessary, since a number of men were more or less deficient in mathematical training and without such help they would have found the work exceedingly difficult. Beginning at two o'clock the class assembled for laboratory instruction, which lasted generally for about two hours. The work in the laboratory was so arranged as to fit in closely with the morning's lectures. During the early portion of the course marine engines were not available and it was necessary to give instruction upon the ordinary central-station types with which the Institute laboratory is chiefly equipped, although engines of marine type equipped with marine reversing gears



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INSTRUCTION ON AIR COMPRESSORS—SCHOOL FOR ENGINE-ROOM OFFICERS AT THE INSTITUTE

were added as rapidly as possible. It was found, however, that with the help of the lectures and a few diagrams the comparatively slight differences involved could be made negligible from an educational point of view. The theoretical instruction given was amazingly complete. It included valve setting with the steam engine indicator, steam boilers and boiler room accessories, including the complete calculation of the staying system of the Scotch boiler, the more important calculations in the properties of steam and a very thorough course in refrigerating machinery. When it is considered that many of the men under instruction had not received a complete grammar-school education, it seems astonishing that such a course could be successfully carried through. As a matter of fact the success obtained was due solely to the fact that the instructors were with the men constantly and gave them the advantage of the closest personal attention, rendering help wherever and whenever it was needed.

The spirit of the men was also noteworthy. Throughout they worked with the

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greatest cheerfulness, not to say enthusiasm, many of them staying each evening to take extra instruction in the use of the slide rule. Nearly all of them carried their notes with them when they took up their duties on board ship, and one of them, in writing to an instructor, stated that although he had been torpedoed twice, he had not yet lost his notes, for he kept them sewed into one of his pockets in a waterproof package. The men who took this course at the Institute are without exception proud of the fact and they have formed an association known as the Alumni Association of Marine Engineers trained at the Massachusetts Institute of Technology.

The number of these men is very considerable, for no fewer than thirteen hundred men have graduated from the Institute School alone. From the United States Shipping Board Schools for Engine Room Officers throughout the United States the number is approximately six thousand, of whom three thousand, one hundred and seventy-nine have received licenses as engine-room officers, while most of the remainder are at present serving in the Merchant Marine until such time as they shall have received the experience requisite to obtaining the licenses.

An efficient engine-room force is as essential to a merchant marine as a supply of skillful navigators. This point has been forcibly brought home to Great Britain, where the number of engine-room personnel who lost their lives was very great as compared with the number of navigators who went down with their vessels. The result is that the shortage of engine-room officers has become acute, so acute that it has been deemed necessary to undertake the extensive training of engine-room men for the British Merchant Marine. In this connection it is interesting to note that the British Government has recently sent representatives to the United States to study the Shipping Board Schools for Engine Room Officers as organized by Professor Miller with the object of instituting similar measures in Great Britain.

When the record of the Shipping Board Schools as a whole is considered it would appear that an impossibility has been accomplished. In addition to the thousand ships originally planned many others were built, nor were these confined to three-thousand-ton vessels. Yet never once has an American merchantman lacked competent men to take charge of her. Nor is this all; for in the submarine-infested waters of the war zone these officers were frequently called upon not only to sail their ships, but to "fight" them as well; yet it is a matter of official record that not one ship was lost by the inefficiency of any officer.

INTENSIVE COURSE IN NAVAL ARCHITECTURE

In addition to the schools carried on at the Institute for the training of government personnel with governmental co-operation, a number of intensive courses were also carried on to permit undergraduates or recent graduates of the Institute to fit themselves immediately for certain types of work in which a shortage of skilled men existed. Perhaps the most important among these were those carried on by the Department of Naval Architecture under the direction of Professor C. H. Peabody, assisted by Professor George Owen.

When the program of the United States Shipping Board was announced it became evident that the supply of naval architectural draftsmen throughout the country was altogether inadequate to relieve the situation. Immediately upon the outbreak of hostilities every one of the six members of the senior class in naval architecture entered the governmental or civilian service, three becoming ensigns in the Navy and three taking positions in the Fore River Shipyards. The department, however, was receiving many letters from various yards asking at once for as many men as could be obtained.

This emergency had been foreseen by the Institute authorities, and at the suggestion of Professor Peabody, an intensive course for marine architectural draftsmen, with a registration of fifty-one, was in operation by the first of May, 1917. A ten weeks' course was given covering the principles of naval architecture and design, practical training in naval architectural drafting and instruction in displacement, stability, launching, power and speed of vessels. The course appealed particularly to the civil, mechanical and architectural engineers who were well fitted by their previous training to undertake it. It was

INTENSIVE COURSE IN NAVAL ARCHITECTURE



STUDENTS IN THE SCHOOL FOR RADIO ENGINEERS

a gruelling course of ten hours a day, five of which were spent in the drafting room and the remainder in lectures and preparation.

The course prepared these men to be draftsmen in the Bureau of Construction and Repair of the Navy Department. An arrangement was made with the Navy Department by which those men desiring commissions reported to the Charlestown Navy Yard to take an additional four months' course in the shops of the Hull Division. Here they were employed in gaining practical experience in construction and each day's work was supplemented by lectures. At the end of the course a report was made on each man's ability and they were rated accordingly. Nineteen commissions were issued, fourteen for assistant naval constructors, with the rank of lieutenant (junior grade), United States Navy, and five for ensigns, United States Naval Reserve Force.

The first course met with such success that both private and government interests urged its repetition; and a similar course was opened to graduates of all technical schools in February, 1918. Approximately thirty Institute men enrolled for this course and were, by faculty vote, excused from the second term's work of the fourth year. No theses were required, as it was considered a satisfactory completion of the intensive course and entrance into the government service or the shipbuilding industry should entitle the men to their degrees.

So satisfactory were these courses that it seemed worth while to attempt the establishment of such a course on a national basis similar to that of the United States Shipping Board Schools for Deck and Engine-Room Officers. Great encouragement was given to the scheme both by the Shipping Board and by private interests, certain yards even offering to pay the expenses of men attending the school provided they could obtain their services afterwards. About fifty men enrolled for the course, all of them undergraduates or recent graduates of the Institute and it seemed that the scheme might be a complete success when the armistice intervened and the demand for men at once ceased. The scheme for making this course of naval architecture a national institution proved impossible of fulfillment largely due, first, to the armistice, and second, to the fact that only two schools in the United States besides the Institute carry permanent courses in naval architecture, and as a result the supply of suitable material for intensive training proved most limited.

TECHNOLOGY'S WAR RECORD

INTENSIVE COURSE IN WAR BACTERIOLOGY

Another intensive special course was that given by the Department of Biology and Public Health, under Professor Sedgwick's direction, for the training of laboratory assistants. The establishment of this course was brought about by the tremendous demand for trained workers, both in government and civilian hospitals during the summer of 1918. It will be recollected that at this time the casualties in the American Expeditionary Forces reached their highest point, and for a time slightly exceeded the maximum number which had been expected, while many diseases, notably trench fever and dysentery, required special attention. Under these conditions the Harvard-Technology School of Public Health and similar institutions of training were unable to supply the demand for laboratory workers by means of their usual courses.

Accordingly, a special intensive course was given commencing in July and terminating in September. A considerable number of students registered for this course, most of them, as might be expected, were women.

The studies consisted chiefly of public health laboratory methods, as given by Doctor Slack, but the students were permitted to take such other work as they desired. Particular emphasis throughout the course was laid upon those maladies which had proved most serious in military operations, notably typhoid, malaria, dysentery and venereal diseases.

The course lasted twelve weeks and thirty-one students graduated. Of these, seven went directly to military hospitals and the great majority of the others took positions in civilian hospitals, including a number connected with essential industries, or in research laboratories, or entered nurses' training schools.

So successful was the course that a second course was arranged, which began in October, 1918. Due to the signing of the armistice, it was not necessary to graduate this class as quickly as the other, and it accordingly continued its work until June, 1919, graduating twenty-nine students at that time.

While the work was carried on through the Harvard-Technology School of Public Health, that part of it which was chiefly performed in the laboratory was practically confined to the Institute. Students were required to take a certain number of lectures at Harvard.

SCHOOL FOR WARRANT MACHINISTS

At the outbreak of war the Committee on Public Safety and certain officials connected with the Naval Coast Defense Reserve of Massachusetts requested the organization of a school to train men in the operation and maintenance of gasoline engines. The object of this course was to fit men of the Naval Coast Defense Reserve or men who desired to enlist therein to become class B warrant machinists, with training which would render them suitable for work on gasoline vessels engaged in coast-patrol work. Professor J. C. Riley, with the assistance of Mr. K. C. Robinson, '10, Mr. Charles L. Homer, New England representative of the Sterling Engine Company of Buffalo, New York, and Mr. Morris Brotherton, of the Sterling shops, took charge of the organization of the course.

Instruction was given upon two types of motors, both types commonly found on sea-going gasoline vessels. One of these, a four-cylinder motor, was used under power while the other, of eight-cylinder design, was used for practice in taking down and assembling. Especially thorough training was given in locating trouble in the engines and making quick repairs, such as would be necessary at sea.

The course lasted a number of weeks and a considerable number of men completed it. It would appear that, like many efforts made during the early part of the war, the school did not receive the official recognition of the Navy Department. In any case the graduates did not receive the grade expected and were called into service as ordinary seamen and held for service on steam as well as gasoline vessels.

RESEARCH

The service rendered by the Institute in the field of research does not appear at first glance so impressive as the record of the various training schools mentioned in the

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preceding pages. This condition is not due to lack of work in research carried on by members of the Institute staff or performed in its laboratories. It results rather from the manner in which this work was carried on. It would appear from Doctor Maclaurin's letters that he had hoped that the Institute might be assigned certain problems for investigation, thus allowing the well co-ordinated staff and the exceptional association of various laboratories to be used in this work with the greatest possible efficiency. The government policy, however, scarcely permitted such an arrangement, for the various departments drew into their services individuals rather than institutions.

As a result Technology can scarcely point to a single piece of work and say, "This was performed by the Massachusetts Institute of Technology." Upon the other hand practically every member of the instructing staff became associated with some government department, committee or board, acting as a consulting engineer or investigating problems of the most vital nature. The majority started work in a consultant capacity and conducted their early experiments in the Institute laboratories. As the work progressed they became indispensable to the authorities in Washington and one after another was absorbed into the civil or military service of the United States. It has been found practically impossible to separate the work of these men as members of the Institute staff from their work as members of the various committees and boards upon which they served. Accordingly the accounts of their achievements will be found in later chapters dealing with the work of Technology men as individuals in various governmental boards, committees, departments and services.

In a way this dispersion of our staff may appear unfortunate, but in many respects it was beneficial both to the Government and the Institute. It permitted the government to bring to its own service the very best scientific talent of the country and to place each man where he could co-operate most directly and efficiently with others working upon the same problem. On the other hand, these men carried the name and reputation of the Institute with them wherever they went and it seems not improbable that the records made by them in every branch of national endeavor have been largely responsible for the increased interest which the Government and the public generally have shown in the Institute since the close of the war.

UNDERGRADUATE EDUCATION

The Institute was prepared to utilize its staff and its equipment in the Nation's service, but difficulty was experienced in adapting the undergraduate curriculum to war-time conditions. This difficulty lay not in the curriculum itself, for the courses given at the Institute prepared its graduates directly to take up work in essential industries and, as has been noted, Institute graduates had entered the military service of the United States and had served with enviable records. The difficulty lay in the fact that the value of the Institute's system of education, as a national military asset, had never received the official recognition of the Government. This is not surprising, for it will be remembered that at the outbreak of the war the preparedness movement in the United States had not reached a point where the part which the Nation's educational institutions should play had been realized.

As a result, the Course in Military Science was the only training given at the Institute that was officially recognized as having military value. This course had been established in the year 1865 under the Land Grant Act of 1862, and in accordance with the provisions of this act military training consisting of two hours of drill per week in the M. I. T. Corps of Cadets and one hour per week of lectures was required of each freshman under twenty-one years of age who was an American citizen, unless excused for physical defects. The work was carried on by an officer of the Regular Army and it was required that this officer should report to the Adjutant-General of the Army the names of such students as showed special aptitude for military service. At its inception the Cadet Corps had consisted of a skeleton company but with the growth of the Institute it had increased steadily in size. In the year 1912 Major (later Colonel) Edwin T. Cole, U. S. A. Retired, was appointed commandant and became professor of Military Science at the

TECHNOLOGY'S WAR RECORD

Institute. Colonel Cole, by the use of the skeleton squads, expanded the corps to a regimental organization, thus giving the greatest possible percentage of men experience in command. During the years 1915 and 1916 the efficiency and morale of the corps increased noticeably, and in the fall of 1917 the course was extended to two years to conform to the requirements of the Reserve Officers' Training Corps. It is evident from its provisions that the intention of the Land Grant Act was to provide a registered corps of reserve officers. As a matter of fact, however, instruction given under it failed to accomplish anything. The drill lacked snap, discipline was lax and the theoretical instruction was superficial. For example, in the final examination for the year 1907 the question was asked, "What should be done with the campfire on breaking camp?" Some of the replies have been preserved in "Technique 1909" and read as follows: 1. "Feed it to the chickens." 2. "Hang it up on a little tree." 3. "Kiss it good-bye." 4. "Wrap it up in a piece of paper." The men who gave these replies received P's for the course and were later graduated as having satisfactorily completed one year of military training. A system carried on along such lines could scarcely be expected to inspire respect or enthusiasm; little could be expected from it as a means of undergraduate military training and the Cadet Corps exerted little influence upon undergraduate life during the war.

Military training at the Institute was not, however, confined to the Cadet Corps. In the fall of the year 1915 there had been established through the initiative of undergraduates an engineer company known as the M. I. T. Engineer Corps. Membership was voluntary and the men worked solely from patriotic motives, the work being done in their own time and with their own money. The movement appears to have originated with the officers of the Cadet Corps, especially R. E. DeMerritt, '17, and R. O. Lowengard, '17, who during the winter of 1915-1916 gathered a small group of men interested in the subject, and undertook special work under Colonel Cole. The movement possessed possibilities and through the efforts of Colonel Cole the matter was brought to the attention of General William M. Black, Chief of Engineers, U. S. A. As a result, in the fall of 1916, Captain Frederick B. Downing, U. S. A., was detailed to Technology as assistant professor of Military Science to take charge of engineering instruction, while



DERRICK AS CONSTRUCTED BY THE M. I. T. CORPS OF ENGINEERS

UNDERGRADUATE EDUCATION

two caissons of engineering material were placed at his disposal. Under the direction of Captain Downing, assisted by Captain A. S. Smith, U. S. R., the company was divided into three sections, each specializing in a branch of military engineering. The bridge section was under the command of H. L. Wirt, '18; the fortification section was commanded by R. O. Lowengard, '17; and W. L. Dennen, '17, had charge of the reconnaissance section. R. E. DeMerritt, '17, was in command of the corps and was assisted by A. E. Keating, '17. The corps went into camp during the last week of April at the farm of A. E. Tuttle, '17, near Billerica. Here considerable outdoor work was accomplished. The entire section was mapped, a stream was bridged by a forty-foot span of pine logs cut in the near-by woods and the camp was protected by a dam deflecting the course of the stream. Camping trips were limited by the regular schedule of instruction at the Institute; but men in the Engineer Corps were sometimes excused from Saturday morning recitations in order that the time in camp could be lengthened. That the work done by the organization was by no means wasted is sufficiently proved by the fact that practically every member of the company entered the Army as a commissioned officer and many served with distinction.

Neither the Engineer Corps nor the Corps of Cadets could be considered as being more than very indirect means of service and with the outbreak of war the undergraduates became restless. Something more direct was demanded. The students found themselves assailed from every side by regular recruiting sergeants, by persons who did not realize that America had entered the war in earnest and who desired to form all manner of volunteer organizations, and by others who, expecting a call for volunteers, desired to form some kind of Technology unit, for instance, a battery of artillery. The restlessness was not confined to Technology, for at that time the undergraduates of American universities generally were suffering from what was popularly called "war fever." This condition of affairs was serious as there was danger that the men might hastily take action which might place them where they would be of comparatively little service.

Doctor Maclaurin had anticipated such a situation. He had noted the mistakes made in his own native land in raising "Kitchener's Mob" in 1915. He knew how the best of England's youth had volunteered in the first hundred thousand and how they had been practically annihilated in three months' fighting at Loos and Festubert; he knew how an entire battalion had been formed of skilled chemists, and how this "Chemists' Battalion" was wiped out in a single action, a blow to England's munition industry from which it never recovered. With these examples in mind, even before the outbreak of war, President Maclaurin set about preventing any stampede on the part of the Institute's undergraduates. As soon as diplomatic relations were severed a convocation was called in Smith Hall and Doctor Maclaurin addressed the entire body of undergraduates and staff. He did not mince words, but emphasized the fact that war was practically inevitable and that it was high time for every man to consider what course he should take at the outbreak of hostilities. He advised seniors to enter government service immediately, while the remaining undergraduates should continue their courses and fit themselves to become technical experts or officers as rapidly as possible. At the outbreak of war another mass meeting was called in the du Pont Court and Doctor Maclaurin again announced his policy saying, "The course of the senior is to do everything now; others will find their best service in preparation."

This policy of Doctor Maclaurin was in agreement with the policy of the Undergraduate and Alumni Committees on Preparedness and was given definite form on April 25, 1917, when the faculty adopted the following resolution:

"WHEREAS: The nation is now at war,

"BE IT RESOLVED: That the Faculty of the Massachusetts Institute of Technology hereby records its desire to assist and to co-operate with the President and the Congress of the United States by affording every opportunity for students to enter for sufficient reasons the service of the United States before the end of the war.

"In order that its Seniors may be available for Military and Civil Service, it is voted that the candidates for graduation whose records were clear at the time of the declaration of war, upon entering the service of the Country, be excused from further exercises of the term and be at once recommended for their degrees. It is further voted that the cases of other Seniors be referred to the Committee on Faculty Business with power to act.

TECHNOLOGY'S WAR RECORD

"Upon being ordered into active service, it is voted that students of all classes who, at the time of declaration of war, were members of the National Guard, Naval Militia and similar organizations will be granted leave of absence. If they return to the Institute at the beginning of the school year, they will be admitted provisionally to the work of the next year. They will, upon showing their ability to carry on the advanced work, be excused from the remaining work of the current term.

"With regard to students below the fourth-year class, the Faculty strongly urges that they remain at the Institute and complete their technical training; it believes that, for them, this is the most effective kind of national service that they can perform. Those who desire to do so will probably have the opportunity to enroll next fall in the four-year Military Course (R. O. T. C.), which, it is expected, the War Department will establish here."

These measures, however, did not allay the general restlessness. It was necessary that the student should feel himself actually in training for combatant service. For such a purpose the Cadet Corps was utterly inadequate while the volunteer Corps of Engineers had no official standing. Furthermore, it was evident that four years was too long to wait



STUDENTS AT CAMP CUNNINGHAM PRACTICING ON THE TARGET RANGE

before taking up active service. A great deal of discussion took place both among faculty and students, the latter becoming more or less crystallized through the Institute Committee, of which at that time John M. DeBell, '17, was the chairman; as a result a joint committee of faculty and students was appointed by Doctor Maclaurin to take up the entire question. The appointment of this committee was announced in a bulletin issued in *The Tech* which reads as follows:

"Bulletin No. 1

April 27, 1917.

"In view of the extraordinary conditions created at the Institute by the war, and on the representation of various members of the student body and of the Faculty, President Maclaurin has created a Joint Committee of Faculty and Students which is to have charge of all matters relating to national service on the part of students. The Committee is to serve as a means of co-ordinating all forms of effort, of giving stability to the work of the Undergraduate Preparedness Committee, and of providing for the *effective dissemination of reliable information*. In its composition the Joint Committee is intended to be thoroughly representative of different elements in the student body and of the staff of instruction and administration. It consists of fifteen students and of eleven Faculty members, with President Maclaurin as chairman. It is composed as follows:

"President Maclaurin, Dean Burton, Registrar Humphreys, representing the administrative officers; Professors H. Fay, W. K. Lewis, E. F. Miller, C. H. Peabody, H. G. Pearson, W. T. Sedgwick, W. E. Wickenden,

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representing the Faculty; Major E. T. Cole, Captain J. W. Howard, representing the Military Department; E. P. Brooks, J. M. DeBell, J. W. Doon, L. L. McGrady, R. W. VanKirk, representing the Institute Committee; A. F. Benson, H. T. Swan, D. D. Warner, A. E. Windle, representing the Undergraduate Preparedness Committee; E. F. Deacon, Drill Squads; R. W. DeMerritt, Captain Engineer Corps; A. N. Pray, *The Tech.*; A. E. Tuttle, Rifle Club; K. Reid, Architects; C. H. M. Roberts, Colonel of Regiment. The Joint Committee met and organized on April 24. For the more effective transaction of business it appointed an executive committee consisting of DeBell (chairman), Brooks, Cole, McGrady, Miller, Peabody, Pearson and VanKirk."

The object of the committee being primarily to co-ordinate undergraduate effort to national service, the most direct means of doing so appeared to be the establishment of a unit of the Reserve Officers' Training Corps, negotiations for which were already under way. This corps, which had been authorized by an act of Congress on June 3, 1916, appeared to offer an easy solution of the difficulty, since it permitted students at technical and military schools, by taking a little additional work in military subjects, to



EUROPEAN CONDITIONS AT CAMP CUNNINGHAM

qualify as reserve officers of the United States Army. There was, however, one difficulty, which seems to have been generally overlooked — the fact that members of the Reserve Officers' Training Corps did not become reserve officers until the completion of their courses and that in the meanwhile they were not part of the military forces of the Nation. The Reserve Officers' Training Corps had been planned as a means of developing reserve officer personnel under peace conditions only and was foredoomed to fail as a means of co-ordinating the undergraduate effort with national service in time of war.

It is possible that had the Institute taken this matter up earlier, the result might have been more satisfactory. As early as April, 1916, Merton L. Emerson, '04, had written to Charles A. Stone, '88, at that time President of the Alumni Association, urging that the Institute take steps toward the establishment at the Institute of a unit of the Reserve Officers' Training Corps, but on account of the press of business connected with the opening of the new Technology, Mr. Emerson's proposal was not acted on at that time.

In November President Maclairin took up the question with the War Department, but made slow progress since the Institute was loath to make the necessary changes in

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its curriculum, while the War Department was unable to modify the provisions of the act to accommodate the Institute. Progress, however, was made, and upon March 5, 1917, in accordance with War Department Special Order No. 52, a board of officers consisting of Colonel Tracy C. Dickson, U. S. A., Retired; Major Edwin T. Cole, U. S. A., Retired; Captain Harry C. Barnes, C. A. C.; and Captain Frederick B. Downing, C. of E., was appointed "to meet at the Massachusetts Institute of Technology and to formulate and recommend courses of instruction for Coast Artillery, Engineer, Signal, and Ordnance units of the Reserve Officers' Training Corps." This board, working in close co-operation with the Institute faculty, drew up a very complete résumé of the courses of the Institute, showing that these courses were already almost identical with those prescribed by the Government and that with very slight alterations students could fit themselves to become reserve officers, by taking extra work of a purely military nature consisting of three hours per week in the sophomore year and two hours per week during the remainder of the course. Accordingly the Institute on the thirty-first of May, 1917, made formal application for the establishment of a unit of the Reserve Officers' Training Corps, being the first major educational institution in the United States to do so. There were, however, some difficulties yet to be overcome, as the authorities did not entirely agree with the findings of the board, and at the time of commencement in the year 1917 the matter had not been adjusted.

Since the Reserve Officers' Training Corps had not been officially authorized, effective co-ordination of the Institute undergraduate life with the national service had not been accomplished and temporary measures were necessary. One of the first measures adopted by the Joint Committee at Colonel Cole's suggestion was the formation of drill squads, consisting of men of the senior and junior classes who expected shortly to enter the military service. These squads were so arranged that each man was given a chance to command and instruct, thereby insuring that upon reporting at officers' training camps elsewhere he would already have had some experience in these matters.

As the men became more skilled the size of the units was increased until the squads formed companies and these in turn formed a battalion.



THE "FRONT LINE"—CAMP CUNNINGHAM

UNDERGRADUATE EDUCATION

Arrangements were also made by which the class of 1918 could have an opportunity to anticipate some of their fourth-year studies and thus be prepared to complete their courses before February, 1918. Starting June 13, 1917, courses in the more important and general senior-year subjects were opened under the direction of regular members of the Institute staff who undertook this work without remuneration. Over one-third of the senior class registered for the course. The schedule was so arranged that seniors could take from three to four subjects during the morning hours and have the afternoon free to devote to the military work, which was an important part of the scheme. This work was a continuation of that of the drill squads, but of course members of the class of 1917 were no longer present. The one hundred and seventy members of the class of 1918, together with the numerous juniors who availed themselves of the opportunity to anticipate some of their studies, were organized into three companies under "Captains" H. F. Collins, '18, H. W. Fitch, '18, and W. A. Jones, '18; while L. F. Hamilton, '14, former colonel of the Cadet Corps, acted as major of the new organization, which was known as the Senior Battalion. The academic courses were intensified and required considerable preparation, and many of the men, in their anxiety to prepare themselves for government service as quickly as possible, undertook as much as fifteen hours' work daily.

The military work of the battalion required three hours every afternoon including Saturday and sometimes extended over the week-end. A target range was built on the estate of Mr. W. Cameron Forbes at Norwood for the use of the Institute and there instruction was given with the Springfield rifle; on several occasions the battalion camped there overnight. Tents were not available and the men slept in the open without cover other than that afforded by the cloth gauze which had been provided as an alleged protection against mosquitoes. Nevertheless the splendid spirit of the participants rendered the summer courses and Senior Battalion most successful, and many received their degrees in February, 1918.

It was also necessary to provide for the sophomores who, it was hoped, by doing extra work during the summer could anticipate some of their junior studies and thus be able to join the Reserve Officers' Training Corps during the succeeding year. With this end in view the Joint Committee on National Service set to work to organize a summer military camp. The plan of the Joint Committee was to enlarge the existing plant arranged for the regular summer schools in hydrography, surveying and geology on Gardner's Lake, East Machias, Maine. Every member of the class of 1919 was personally interviewed by a member of the committee, and in worthy cases financial aid was offered, with the result that one hundred and twenty students, outside the required summer courses, registered. The plan could not have been carried on without considerable financial support, but Mrs. Cunningham, the widow of Edward Cunningham, '91, appreciating the necessity, generously subscribed to the support of the plan, and in memory of her husband the camp was named Camp Cunningham.

On Monday, June 11, the first detachment left for Technology, Maine, followed on June 18 by Company A, composed of men of whom summer school was not required, but who had volunteered for the course. "Major" (Professor) G. E. Russell acted as executive officer and was assisted by "Captain" H. L. Wirt, '18, "Lieutenants" P. C. Leonard, '17, J. M. DeBell, '17, F. A. Washburn, '18, A. E. Tuttle, '17, E. H. Clarkson, '16, R. O. Lowengard and K. S. M. Davidson, '19.

When Company A arrived at the camp they received their first experience in real military service. The summer rains had swamped the drill field, delayed the construction of the barracks and washed out portions of the road to the camp. "Major" Russell put them to work repairing roads, building the rifle range and cleaning up debris, thus teaching at once the work military engineers are required to do and the truest type of discipline. Drill was conducted along the lines universally adopted by the Government at the Reserve Officers' Training Camps. Under the direction of "Lieutenant" A. E. Tuttle, rifle ranges were constructed with well-protected butts and firing points at ranges of two and three hundred yards. Through the efforts of "Major" Russell, Captain Bland, an officer of the Royal Field Artillery of Canada, who had seen two years' service in France, was secured to give instruction in artillery work with a dummy field battery.

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For sub-caliber training a miniature Belgian village was built and a small bore rifle mounted on a dummy fieldpiece was employed to attack it. The effects produced were realistic and were of considerable aid to Captain Bland in demonstrating the theory of artillery attack and defence. Taken as a whole the course of training given Company A was very nearly identical with that given in the famous Plattsburg camps of 1915 and 1916, and members of Company A who have since seen active combatant service have stated that they consider their experience at Camp Cunningham as the most valuable training they received.

On July 25 the students registered in courses requiring summer-camp instruction arrived at East Machias. Together with those men from Company A who intended to take regular surveying courses, these men were organized into a new company, known as Company B. It would appear that many objected to the military work as a waste of



TUG-OF-WAR AT CAMP CUNNINGHAM

time and to military discipline which they found irksome. As time went on this feeling subsided; but the company does not appear to have worked with the same enthusiasm or to have obtained the same benefits as the men of Company A.

The results of the summer camp were most gratifying. The greater majority of the men returned to the Institute and completed their courses and practically every man in Company A and many of those in Company B ultimately entered the military or naval service of the United States. Some twenty-six men went immediately into the Army or Navy, of whom two, Malcolm C. Brown, '19, and Donald C. Pero, '19, were shortly afterward killed in ser ice.

Excellent as Camp Cunningham was, it had one serious defect — lack of official recognition. Men returning to the Institute from the camp found, as had been expected, that a Reserve Officers' Training Corps was about to be established, but they also discovered that they were not eligible to enter it, because they had not received two years of officially recognized training.

In order to provide military instruction for those upper classmen who were ineligible to join the Reserve Officers' Training Corps, the Department of Military Science

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organized an "advanced battalion." Enlistment was voluntary, but a student who registered was required by faculty ruling to complete the course. Four companies were organized, captained by students, who held their positions permanently, while men acting as lieutenants and non-commissioned officers were changed from time to time. Close-and-extended-order drill was undertaken as disciplinary exercise. Lieutenant André Morize, an officer in the French Army who had been detailed to instruct at Harvard University, lectured on trench warfare, and F. A. Washburn, '18, an instructor from the Naval Aviation Detachment, explained the operation and mechanism of the various machine guns and their tactical employment. During the second term Major Cole delivered informal lectures on military organization and the basic principles of warfare. Instruction given in the battalion was in fact of a very practical nature; sixty-five of its members received their degrees in February and went immediately into the service of the United States.

In the meanwhile Doctor Maclairin and the Corporation were continuing their efforts to establish a unit of the Reserve Officers' Training Corps, and by October, 1917, it was possible to start work informally. The course, however, lacked official sanction until the thirteenth of December, when orders were received authorizing the establishment of coast artillery and signal corps units of the senior division; 217 sophomores and 550 freshmen at once enrolled. The first year's instruction for the Reserve Officers' Training Corps was the same as that heretofore given to the Cadet Corps, and during the second year also three hours weekly devoted to military work was to be required. Thereafter men desiring to try for a commission were to spend a minimum of five hours a week in military studies prescribed by the War Department. Those enrolling in the Corps for their third and fourth undergraduate years were to receive an allowance of thirty cents a day for rations and also a uniform, and were expected to complete the work of the course. Commissions, however, were to be issued only when the graduates had attended a government training camp and demonstrated their ability.

The establishment of this unit came too late to achieve results. The class of 1917 had been graduated, the class of 1918 was about to be graduated, while the class of 1919 was ineligible. Furthermore, the draft law had been passed and it had been determined that this draft should be selective, those men who were engaged in work of an essential nature being exempted, while others were to be drafted at once. The weakness of the Reserve Officers' Training Corps system was immediately exposed. The members of this corps were not in the military service of the United States. They were upon exactly the same status as other students and were therefore officially classed as in non-essential work. Once this decision had been made by the Provost-Marshal-General's Office, it was clear that education must gain official recognition as essential to the Nation's service or cease. It was realized by engineers generally that, if the draft law was enforced without exemptions for students, the supply of young men trained in technical subjects, upon which the Government would have to rely for its officer material, would be seriously interfered with, and a protest was accordingly lodged with the War Department by the Society for the Promotion of Engineering Education. This protest carried weight, and a compromise was arranged by which students in engineering schools might enlist in the United States Corps of Engineers and be placed on a furlough status. They would thus be considered as being in the military forces of the United States and would not be subject to draft. It was further arranged that only those men would be permitted to avail themselves of this privilege who stood in the upper third of their respective classes, that they might from time to time be called for service and that upon graduation they would automatically return to their former status. General William M. Black, at that time Chief of Engineers, used this system with excellent judgment and for some months very fair results were obtained. About two hundred men in the Institute were certified as coming within the scope of the regulations and were duly enlisted, and a number of men were offered special work in the Corps of Engineers and left the Institute. The arrangement was on the whole quite satisfactory, so far as the students, the Institute and the Corps of Engineers were concerned. Similar arrangements were made by the Navy and some relief was thus afforded to the undergraduate situation generally. This relief, however, could

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not be permanent. The question as to whether or not education of the youth was or was not an essential feature of national service had not been decided.

The decision which had rendered this arrangement necessary represented in tangible form the growing demand for men. The mobilization of the National Army was scarcely completed, yet it was already evident that the first estimates of the numbers of men necessary to fill the combatant divisions were altogether too small, while from every side war industries demanded men, both trained and untrained. Accordingly on December 7, the faculty met with the object of discussing still further speeding up the courses of instruction. It was decided that all non-professional subjects be dropped, that the work of the junior and sophomore classes be shortened by at least one term and that one term's work be given in the summer of 1918, thus enabling the junior class (1919) to graduate on October 1, 1918, and the sophomore class (1920) in June, 1919. It was further arranged that members of the class of 1919 entering government service could omit thesis work and thus graduate in March, 1918. A little later another very radical innovation was made, namely, that of accepting a freshman class at mid-year. Most of these students were received at the Institute on the certificates of their former schools without any examination other than physical. The experiment, though certainly radical, proved a complete success. Extra physical training was given, particularly in the form of field sports and swimming, in which the majority of the class participated, and of this class, numbering approximately a hundred, only one was obliged to withdraw because of low standing. Arrangements were made during the spring for the new summer courses. These opened immediately after the close of the spring term with an enrollment of over six hundred men and proved so effective that 171 men of the class of 1919 were enabled to graduate in October, 1918.

In spite of these arrangements, however, it was feared that some students in the two lower classes would leave the Institute in the summer of 1918 and would not return. A scheme was accordingly devised, which seems to have originated with the Joint Committee of the Faculty and Corporation, whereby students were to be employed during the summer in shipyards. The idea was sponsored by Mr. A. F. Bemis, '93, Chairman of the Corporation Visiting Committee of the Department of Naval Architecture and Marine Engineering, while Professors Spofford, Pearson, and Peabody took a prominent part in its development. The plan of campaign, once outlined, was taken up with the Institute Committee and a special committee working in co-operation with members of the faculty arranged to develop it.

The program of this committee was framed in April and the campaign was opened the first week in May with a convocation which was addressed by Professor F. P. McKibben, '94, representing the Emergency Fleet Corporation. The undergraduate committee found that practically every student was fitted to be a shipfitter's helper at thirty-five cents an hour and that some were fitted for machinists. Most students found little difficulty in obtaining jobs near their home towns. The following shipyards asked for quotas of fifty or over: The New York Shipbuilding Co. of Camden, N. J.; Lake Torpedo Co., Bridgeport; Cramp & Sons, Philadelphia; The Chester Co., Chester, Pa.; The Bath Iron Works, Bath, Me.; The Hog Island Yard at Philadelphia; the Fore River Works, and the Victory Plant at Squantum; The Texaco Co., Bath, Me.; later the Charlestown Navy Yard offered to take a hundred. *The Tech* took up the campaign with editorials and original cartoons representing the Tech undertakers "canning the Kaiser," Tech men celebrating their first launching, and the like. Due to summer school, many men could not work all summer, so six weeks was set as a minimum, and many men volunteered for work in the intervals of summer school. The question of housing was so arranged that the Technology group at each yard should live in barracks under a captain elected by themselves, thus tending to make their work not so much an individual enterprise as an Institute undertaking. As a final incentive an offer of some nine hundred dollars in prizes was made by Mr. Bemis. Two hundred and forty-four men enrolled for the work. These young men unquestionably did a certain amount of service to the Nation, but the most important result seems to have been that they kept up their connection with the Institute and returned to finish their courses.



CARTOON PUBLISHED BY "THE TECH" TO RECRUIT STUDENTS FOR SHIPYARD WORK

A number of essays were handed in by the men, and the sum of seven hundred dollars was distributed in prizes. The highest single prize was awarded to George A. Wilson, '20, who received the first prize of one hundred dollars for the best essay describing the work performed. Leland W. Gilliatt, '20, received the second prize of ninety dollars and also won two fifty-dollar prizes for essays on training men for work in the shipbuilding industry and for the greatest number of hours of work actually performed during the summer. The prizes were distributed at a great smoker held on November 29, 1918, at which the student body was addressed by Doctor Maclaurin, Dean Burton and others, and the prizes were distributed by Mr. Bemis himself.

The special courses and shipyard work during the summer of 1918 represented the last attempt on the part of the Institute to continue work as an independent educational institution. The question as to whether or not education constituted essential service had not been decided and the educational situation throughout the United States was rapidly becoming impossible. It was evident that unless education was given official status as an essential, no school or college, no matter of what nature, could continue to function. As this would deprive the Army and Navy of properly educated officer material and essential industries of skilled technicians, the matter was taken up by the War Plans Division of the United States General Staff, and on May 8, 1917, presidents of all colleges were informed that a plan had been worked out for the co-ordination of collegiate education with military requirements. This plan provided for the formation of a Students' Training Corps composed of Army and Navy units, which would be administered by the Committee on Education and Special Training of the War Department, a section of Training and Instruction Branch of the War Plans Division of the General Staff. The scheme was in fact nothing more or less than a scheme for a universal school of officer material. Each college which could secure an enrollment of more than a hundred men was to become a

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training centre, in which a uniform program of military training would be carried out, but in which the collegiate education usually given would be continued. All men over eighteen years of age were to be voluntarily inducted into the service and then, as in the case of those previously enlisted in the Engineer Corps, were to be placed on a furlough status and given an amount of military instruction considerably larger than that previously arranged under the Reserve Officers' Training Corps system. The work of the students would thus be twofold — military and academic.

It now became necessary for the War Department to select the man who was to organize this force and direct its academic activities. Doctor Richard C. Maclaurin was selected and, on July 1, 1918, was appointed by the Secretary of War as educational director of the Students' Army Training Corps, under the War Plans Division of the General Staff. Doctor Maclaurin at once set about assembling his organization and was successful in obtaining as his immediate assistant Professor W. B. Munro, of the Department of Government of Harvard University, and later Professors H. W. Holmes and Alexander Inglis, of the Department of Education of Harvard. The next step was the division of the United States into twelve districts and the appointment of a district director, generally the president of a prominent university, who was assisted by a corps of assistant directors chosen from the educational world. Detailed plans for the organization of the training corps were then drawn up and tentative regulations were submitted to the various colleges.

Just as the Training Corps was about to enter upon its work, however, all these plans had to be laid aside and the whole structure rebuilt from the ground. During the past year matters had gone badly with the Allies; in the fall of 1917 had come the Italian disaster, during the winter revolution and mutiny had demoralized Russia and finally, on the twenty-first of March, 1918, the German offensive had well-nigh resulted in a decisive victory for the enemy. By summer American forces were in action, and the battles at Château-Thierry, Bois de Belleau, the Second Marne and the Vesle had been fought. Our troops had been everywhere victorious, but they had received losses which had staggered even their military advisers among our allies. At home the great cantonments stood empty, while the programs for shipbuilding, aircraft and ordnance had fallen behind the appointed schedules. From all sides came the demand for men, a demand which culminated in the passage of the Man-Power-Bill by Congress on August 31, 1918, by which the draft age was lowered to eighteen years, and in the decision of the War Department to send a maximum number of men to Europe at once.

A ruling by the Judge Advocate General now made it impossible for members of the Students' Army Training Corps to remain on furlough status, and it was accordingly necessary that the students should be placed on active duty with full pay and provisions for subsistence, housing and instruction at the Government's expense. It also had the unfortunate result of placing students entirely under control of military commanding officers, although academic work was still to be carried forward under the auspices of the collegiate authorities, a situation which proved most difficult for all parties concerned.

Furthermore, the demand for men was so serious that a policy was soon adopted which for the time being nullified the entire scheme. This was a decision by the War Department that men twenty-one years of age should be transferred to active units after three months, those of twenty years after six months and those of nineteen years after nine months of training. To be sure this policy conformed closely to that adopted by the Government at the United States Military Academy, for by this time the course there had been reduced to a single year. It was at that time believed, however, by the most experienced officers in the Army, and experience has amply borne this out, that for most boys of eighteen, one year's training is totally inadequate to produce officer material. The emergency, however, was critical and drastic measures were necessary.

The subsequent history of the Students' Army Training Corps was unfortunate. It had been intended that the course should start October 2, 1918, but the influenza epidemic, which at that time was sweeping the country, prevented this, and the date was accordingly set for October 10. When this date arrived, however, it was still found that many men who should have reported had not done so. As a result, the process of induction,

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which should have been completed at the very beginning of the term dragged on for a month, being prolonged by the failure of the local draft boards to return the necessary papers. Simultaneously came difficulties consequent on the breakdown in the Quartermasters' Department and the failure of supplies, uniforms and bedding, and finally it was necessary that the men receive typhoid inoculation and perform other military duties which during the early days of the Corps interfered greatly with the academic work. Students, military and academic officials, however, did their best under the circumstances, and it at last appeared that the system might soon be in good running order, when the armistice was announced, leaving the students nothing more or less than a body of some one hundred and forty thousand very tired young men who had not yet been sufficiently under military discipline to have become used to it and who felt that the war was long over and that their education was being interfered with.



INTERIOR OF THE STUDENTS' ARMY TRAINING CORPS MESS HALL Boston Photo News Co.

The unit at the Institute fared rather better than the average. One of the most serious difficulties encountered by most of the units was that of finding suitable quarters, since the change from furlough to active duty status required that the men should be housed in barracks. As this decision came late in August, great difficulty was experienced by most schools in putting up buildings in time to receive the students, and in providing suitable mess facilities. Thanks to the efforts of Bursar Ford, Mr. J. E. Jobling of Stone & Webster, not to mention Toni Tartarini and his unique foundations (see page 55), the buildings at the Institute were ready in ample time, while Mrs. McLean's splendid kitchen and dining room organization (see page 56) supplied excellent food and service.

It had been expected by many that with the establishment of the Student Army Training Corps the Institute would find it necessary to abolish its usual courses, but such was not the case. Courses IX and XII were dropped, but all other courses in slightly modified form were continued in such a way that those taking a portion of the course in the Students' Army Training Corps could return after the war and complete the work necessary for graduation. Thus for the freshman class in the engineering courses the

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subjects given were chemistry, mechanical drawing and descriptive geometry, surveying, mathematics and war issues, the latter being a course in history and English prescribed for Students' Army Training Corps units and given throughout the United States under the direction of Professor Aydelotte of the Institute English Department.

During the days of the Students' Army Training Corps the Institute presented a strange sight, for practically every student was in uniform and study commenced and ended each evening by the notes of the bugle. In addition to the Students' Army Training Corps unit, in which some 847 men were enrolled, there was also a unit of the Students' Navy Training Corps numbering 363. It had not at first been expected that this unit would be formed, but on September 21 its establishment was announced. As there was no time to make provision for installing the men elsewhere, the drawing-rooms of the Department of Civil Engineering, which had just been vacated by the Army School of Military Aeronautics, were assigned to the Students' Navy Training Corps unit and the Copernicus Tower became the "U. S. S. Copernicus." The men of both the army and navy units were sworn into the service of the United States, wore the regular uniform of their service and received the pay of enlisted men or of apprentice seamen, as the case might be. The school for naval aviators was at this time in its most flourishing condition, and during the forenoon more than four thousand men in the uniform of the United States could be seen drilling in the neighborhood of the Institute. Nor were the changes confined to the change from civilian to military. The men of the naval unit, who seem to have possessed excellent morale, organized a football team, which played Exeter and the corresponding unit at Springfield Training School, being beaten in both games by close scores. This incident was interesting, for though the team was selected from the naval unit only, men of all classes took part.

After the demobilization of the Students' Army Training Corps many persons referred to the organization as a complete failure, both from an educational and from a military standpoint. Such a statement is entirely unwarranted by the facts. The Students' Army and Navy Training Corps did not fail in their object. They simply never started, and, like so many other excellent war measures, found themselves at the date of the armistice only beginning to reach a point where results might have been expected. The principle was absolutely correct, for it recognized the fact that men with sufficient ability to pursue collegiate education were the men with sufficient ability to become officers in the military or naval forces of the United States. It also recognized the fact that such men should receive general and technical education as well as military training to fit themselves to serve as officers and that their activities should not be diverted into other channels. This principle was that which had led to the formation of the Reserve Officers' Training Corps for peace-time training; it was the principle upon which the United States Military Academy is based and it is supported by the experience of all European nations during the war. Three hundred and fourteen of the institutions at which Students' Army Training Corps units were established reported favorably as to the results obtained and where failures occurred these failures were, as a rule, due to uncontrollable circumstances, such as the influenza epidemic or those difficulties which are unavoidable in starting a new and large organization and obtaining proper co-operation between the members thereof—difficulties considerably increased by the peculiar dual control which it was necessary to establish in connection with the academic and military sides of the work. There can be no doubt that had the war continued the Students' Army Training Corps and Students' Navy Training Corps would have settled down to smooth-running organizations, giving approximately one-year courses in military and educational subjects more or less identical with the one-year course which the United States Military Academy had been forced to adopt in the fall of 1918. With gradual adjustments and modifications in the relation between the academic and military personnel, the organization would have functioned smoothly and efficiently, and it is quite possible that had experience at the front shown that men with one-year's training were insufficiently prepared, the course would have been somewhat lengthened. In any case the scheme was one which finally accomplished the desired result and obtained official recognition for collegiate training in the United States; whatever its mishaps and shortcomings, this fact alone marks it as epoch-making.

SPECIAL CONSTRUCTION AND ARRANGEMENTS

In this connection the honor paid the Institute in the selection of Doctor Maclaurin as Educational Director of this movement cannot be overestimated. During the period covered by the Students' Army Training Corps the total enrollment in the colleges of the United States was 253,675, of which 78,550 were women. Of the remaining 175,125, no fewer than 144,437 were inducted into the Students' Army Training Corps. Even so the magnitude of the scheme does not represent the importance of Doctor Maclaurin's position. It should be realized that practically the entire collegiate education of the United States at the opening of the fall term of 1918 was carried on through the Students' Army Training Corps; Doctor Maclaurin, as Educational Director, was, therefore, the officially-recognized head of collegiate education throughout the United States.

The history of the Institute's undergraduate education during the war was not essentially different from that of the Nation as a whole. To the Nation the possibility of a world war seemed too remote to require or even to justify systematic preparation. When the emergency finally came the Institute, like the Nation, used every possible means to meet it, including shortened courses, summer schools and voluntary and officially-recognized military courses. In this connection the Institute has the honor of having been the first collegiate institution to grasp the fact that official recognition was necessary and to take measures to bring about better co-operation through the Reserve Officers' Training Corps. Furthermore, after the signing of the armistice, measures were taken at once to reorganize our courses on a sounder basis, with the result that to-day a Reserve Officers' Training Corps has become an important part of the Institute undergraduate life, while the co-operation with the Government relative to special graduate courses to officers of the Army and Navy also has been placed upon a most satisfactory basis.

The Institute has appreciated the fact that the highest possible mission of an institution of learning is to prepare men to do their duty as citizens of the Nation in time of war as well as in time of peace; if this lesson has been well learned the price has not been too great.

SPECIAL CONSTRUCTION AND ARRANGEMENTS

The various measures described in the preceding pages; the formation of the government schools; the rearrangement of laboratories; investigation of special problems for the Government by members of the staff and finally the change of the entire student body from a civil to a military basis involved other problems than those of a purely academic nature. Among these were new construction, and the provision of messing facilities for the four thousand five hundred men in uniform stationed at this time at the Institute. Each military unit as it was organized or as it arrived required barracks and mess halls. As the number grew it was necessary also to obtain offices for administration, hospitals and recreation centers. Much of the apparatus employed was of a bulky nature, and additional protection both against the weather and from hostile agents was required.

When the first aviation cadets arrived (see page 12) they were temporarily housed by fitting up the drawing-rooms of the Civil Engineering Department as sleeping quarters. Such rapidity was required in making preparations that it was impossible for the Government to supply the necessary bunks, and spare beds and cots belonging to the Institute, or secured by immediate purchase, were utilized until the regulation material arrived. The Walker Memorial was at this time nearing completion, and throughout the summer work upon it was rushed, with the result that it was turned over early in September for use as barracks. Although the building was by no means complete, the walls being still unpainted and the woodwork not entirely in place, the gymnasium and locker rooms were fitted up as squad rooms and finally the balconies overlooking the dining room were walled off with canvas and also fitted up in the same manner, while the dining room became the mess hall for the cadets both military and naval. Even these facilities did not prove sufficient, and it ultimately became necessary to erect a temporary barracks near Ames Street for the naval aviators, while with the organization of the Students' Army Training Corps (see page 49) five large barracks were erected on Massachusetts Avenue. The Naval Aviation Detachment (see page 20) was able to utilize for administrative offices, the building which had been the office of the Stone & Webster Corpo-

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ration during the erection of the permanent buildings of the Institute but it was necessary to build a hospital and a recreation center, while later a landing stage on the Charles River and a bandstand were constructed.

Neither were the Institute's laboratories large enough for the strain now thrown upon them, and one temporary addition after another was erected. Through the generosity of General Coleman du Pont, '84, Pierre S. du Pont, '90, and Lamot du Pont, '01, funds were already available for an aeronautical laboratory known as the du Pont Airdrome. The building was rushed to completion and in it the four-foot wind tunnel was installed. Other buildings followed rapidly, including testing sheds for airplane motors; a cruciform building, popularly called the "Cathedral," used for instruction in observation, navigation and rigging, and two airplane hangars. These in turn were followed by more testing sheds, laboratories, classrooms, machine-gun ranges, and last of all



GENERAL VIEW OF THE STUDENTS' ARMY TRAINING CORPS BARRACKS — EVERY BUILDING IN THE PICTURE WAS BUILT IN LESS THAN ONE MONTH'S TIME

a huge "mystery" pen in which experiments of confidential character, which involved apparatus of great weight and large dimensions (see page 280), were carried out.

Altogether this building program cost the Institute \$550,929. The entire arrangements were handled under the President's direction by Bursar Horace S. Ford, who also was charged with Liberty Loan and similar work at the Institute. The rapidity and economy with which the work was accomplished were due largely to Mr. Jobling, who was in charge of the work for the Stone & Webster Corporation and who at all times gave most hearty co-operation. The structures were erected at the expense of the Institute, but an arrangement was made by which the Government provided compensation based on the probable depreciation and salvage value. The rates were well adjusted and had prices remained constant would have worked out in such a manner that the Institute would have been neither the winner nor loser. As a matter of fact however, prices during the years 1918 and 1919 rose to such an extent that the ultimate salvage value of the property was considerably above that which had been anticipated at the signing of the contract, and as a result the Institute may be said to have made a very advantageous bargain. For exam-

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ple, in the spring of 1917 the space between Walker Memorial and the main buildings was practically a marsh and there was little intention at that time of filling it. It was necessary, however, that the naval aviators should have a drill ground, and men were put to work filling and levelling it off, providing a surface upon which two baseball diamonds and a football field have since been laid out. The cost of this work in the summer of 1917 was barely half the amount which would have been involved in carrying out the same work in 1919.

Nearly all the buildings had to be put up in more or less of a hurry and some under conditions demanding the greatest possible haste. It was only upon rare occasions that Mr. Ford was able to furnish Mr. Jobling or any of his subcontractors with anything approaching a plan. Practically all of the work was based on sketches, the design of the building being completed after it was actually in the course of erection. One noteworthy

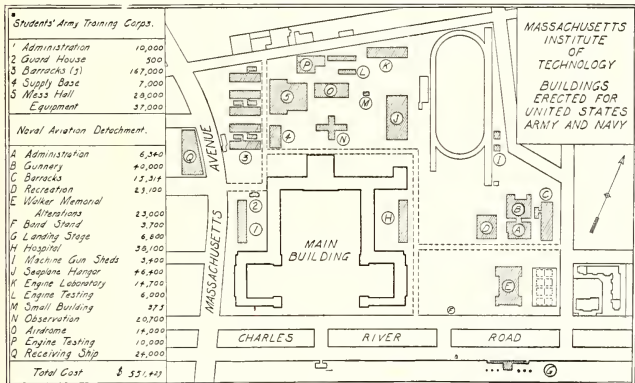


DIAGRAM OF BUILDINGS ERECTED OR LEASED FOR THE USE OF THE ARMY AND NAVY BY THE INSTITUTE

example of this was the building of the barracks for the Students' Army Training Corps in the fall of 1918. It was not until just before Labor Day that it was decided by the General Staff that these barracks would be necessary. On the morning of Saturday, August 31, Doctor Maclaurin indicated to Bursar Ford the general location for the buildings. Excavation was begun before noon. The next day was Sunday and the next Labor Day, but the work continued. About noon on Labor Day, Mr. W. H. Mitchell, who had the contract for the plumbing, was furnished with a plan of the buildings and of the required plumbing drawn on the lid of a soap box with a piece of chalk. The plumbers at once set to work putting the fixtures together in the open and installing them as rapidly as enough of the buildings were completed to permit. In the same way equipment for the kitchen and dining room was installed, including stoves, ovens and soup kettles, many of the pieces being actually in place before there was a roof above them.

Speed was of the utmost importance as the barracks and mess hall were needed by September 28. The work was much expedited by the quick thinking of one of the workmen, Toni Tartarini by name, who hit upon a device which saved many hours. It had

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been intended to place the foundations of the buildings upon concrete piers cast upon ordinary forms and it had been expected that some days would be necessary for the concrete to set. Tartarini had noticed a number of terra cotta electrical conduits lying near by and suggested that if these were placed on end and filled with concrete they would make excellent piers, as the conduits were strong enough to carry the weight of the floor beams while the concrete set. His scheme was adopted and the work continued without interruption, several of the buildings being ready within three weeks. On October 10, when the Institute opened after some delay, due to influenza, the buildings had been ready for occupancy for some days.

Housing the men was one part of the problem. Another, equally important, was that of feeding them.

With the organization of the Students' Army Training Corps the number of students in uniform at the Institute approximated four thousand, and the provision of messing facilities was an affair of considerable magnitude. This task was placed in the hands of Mrs. Helen E. McLean, a graduate of Simmons College, who was given general charge of the Walker Memorial dining room, where the military and naval aviators were provided for, and of the Students' Army Training Corps mess hall as well. She was also responsible for the diet kitchens, serving two hospitals of fifty beds each. She was assisted by Miss Marguerite Duncan, who had immediate charge of Walker Memorial, and Miss Edna Hamblin, who had charge of the Students' Army Training Corps mess hall. Mrs. McLean's organization, which included over one hundred persons, was at one time serving no less than ten thousand meals per day. Her motto was, "Give them what they want, and plenty of it," and it appears to have been most satisfactory. Not only were the meals excellent and the food plentiful, but the rapidity of service was worthy of note. At the Students' Army Training Corps hall alone a system was developed by which it was possible to provide the students with meals at a rate of one hundred men per minute.

CONCLUSION

In carrying out this entire program of education, of research and of construction the Institute's authorities were guided by a single policy, namely: that of giving the maximum possible service to the National Government. The results obtained can only be described as wonderful, particularly when the condition of unpreparedness under which they were undertaken is considered. However, this condition of unpreparedness cannot be disregarded; although much was accomplished, much more could have been accomplished had we been ready. It must be recollected that the Government of the United States is so organized that quick action in a sudden crisis is almost impossible. Therefore, if an institution is to be prepared to co-operate with the Government in an emergency, plans for this co-operation must be laid in advance. It was perhaps through no fault of the Institute that before the late emergency these plans had not been perfected, but the question may well be asked, whether it is not now our duty to make every possible arrangement for closer co-operation with the National Government, in order that in future time and energy shall not be lost in attempting to prepare after the emergency is upon us.

CHAPTER II

WAR ACTIVITIES ASSOCIATED WITH THE INSTITUTE

In addition to the work of the Institute proper a number of war activities were carried on in the name of the Institute by various organizations composed of individuals more or less closely connected with it. These activities took the form of auxiliary committees and associations whose object was to aid the Nation by placing Tech men to the best advantage, or to assure the comfort and sustain the morale of those Tech men already in service.

Mention has already been made of the connection of certain alumni with the first Plattsburg camp in 1915 and of the efforts made by these men and others toward national preparedness before the actual outbreak of hostilities. The Institute and its alumni, as a whole, however, took no really effective action until the fall of the year 1916, because the interest of Tech men had been concentrated upon the opening of the New Technology. With the beginning of the fall term in the new buildings it was possible for other matters to be taken up, and that of preparing for the threatened national emergency was one of the first to receive attention. Doctor George E. Hale, '90, Director of the Mount Wilson Solar Observatory and Chairman of the National Research Council, had just returned from the western battlefront after completing a study of conditions undertaken in connection with the organization of the National Research Council. His trip abroad had impressed Doctor Hale with the absolute necessity for immediate mobilization of the scientific talent and the facilities for research throughout the United States, for he believed war to be inevitable and imminent. With this end in view he interviewed President MacLaurin, Mr. I. W. Litchfield, '85, at that time field manager of the Alumni Association and editor of the *Technology Review*, and many other influential members of the alumni and corporation, urging the necessity of immediate action. At the opening exercises of the Institute he addressed the students and faculty, driving home the necessity for arranging closer co-operation between the Institute, the National Research Council and other governmental bodies, summing up the situation with these words: "By the same token, no sane nation will remain unguarded, least of all a nation rich beyond all others and irrevocably committed to the aggressive dictum of the Monroe Doctrine. We have chosen to demand, and we have repeatedly proclaimed in no uncertain tones, that no European nation shall acquire a foot of territory in this hemisphere, even if it be more remote from us than Europe itself. Are we prepared to enforce this demand?"

At the October meeting of the Alumni Council preparedness had become the most important issue for discussion. The meeting was opened by Charles A. Stone, '88, President of the Alumni Association, who introduced Doctor Hale. Doctor Hale addressed the Council, urging upon them, as he urged upon the students and faculty, the need of extending the research facilities of the Institute and making the fullest use of them in co-operation with the Government in time of emergency. Doctor Hale was followed by Lester D. Gardner, '98, who, as we have seen, was one of the first Tech men to attend the Plattsburg training camps and who was at this time publishing the magazine, *National Defense*. Mr. Gardner attacked the question from every side, drawing attention to the need of immediate and definite action which would be of aid to the Council of National Defense. He laid particular stress upon the provisions of the National Defense Act and showed how the problems which the Government would be called upon to solve, were in almost every case those with which Tech men, by training and profession, were accustomed to deal.

Following Mr. Gardner's speech, President Stone read a letter which Merton L. Emerson, '04, had written the preceding April, suggesting that the Council take up the matter of preparedness in all its phases with reference to offering the assistance of Technology to the Government in case of need and stressing the fact that, under the act

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of June 3, creating an officers' reserve corps, it might be possible for the Institute to render most valuable assistance along purely educational lines.

I. W. Litchfield, '85, then presented a motion as follows: "That, in the opinion of the Council, Technology should assist as far as possible in promoting research and in securing such information as may be of service to the National Government along the lines suggested by Doctor Hale and Mr. Gardner, and that a committee of four be appointed by the chair to make recommendations at the next meeting of the Council."

The motion was carried and a committee consisting of I. W. Litchfield, '85, James P. Munroe, '82, Raymond B. Price, '94, and Merton L. Emerson, '04, was appointed.

This committee of four utilized the next few weeks in interviewing representative alumni and framing a policy for future action, and at the meeting of the Alumni Council, on December 18, 1916, reported as follows:

"To most of us [i.e. the average alumnus] this country appears to be serenely and prosperously entrenched within its own borders, the prospects of war extremely vague and European conditions so remote from us as to figure merely as interesting features of conversation. This lethargic view is extremely dangerous and even menacing.

* * *

"It seems to the committee that the first office of a special committee of the Alumni Association might be to present vividly to the members of the association some of the tendencies that are affecting a broad readjustment of business and social inter-relations in Europe; tendencies so radical that they compel the most open-minded, intelligent and earnest thought. The changing conditions abroad are being brought about through the stress of dire necessity, and we, far removed from the struggle, are in no frame of mind to comprehend either the tendency or its cause. It is particularly an obligation upon us, as an engineering school, to stimulate constructive thought among our members, and by establishing a method of procedure, blaze the way for extending the work to other institutions and other fields.

"The results to be accomplished are equally necessary, whether the nation is at peace or war, and the problems presented can only be solved by scientific methods.

"We believe that an alumni committee can be of service:

"(1) By studying economic tendencies in Europe produced by the war, and by presenting its observations to the alumni for discussion and concerted action.

"(2) By stimulating research at the Institute itself.

"(3) By tabulating the various researches that have been and are being conducted by alumni.

"(4) By suggesting both to the alumni for their consideration, and to the Faculty as subjects for graduation theses, the lines for experiment and research which should be of the greatest immediate value.

"(5) By canvassing the alumni body and creating a personnel index — in effect, an inventory of professional ability and experience with a sort of relative appraisal.

"(6) By suggesting that the duty of Technology to the national government be made the topic of discussion in local centers and among classes wherever Tech men come together.

"(7) By establishing sub-committees in classes and local centers for the purpose of more effective organization, closer co-operation and wider publicity.

"(8) By soliciting carefully thought-out suggestions from the alumni covering any field within the scope of the committee."

Whatever may have been the state of mind of the average alumnus on this date, it must be said that the committee in its recommendations showed evidence of having gone into the subject thoroughly, and its recommendations included the very best known methods of preparation. In particular it should be noted that recommendations one, three and five represent steps of the most basic character — being, in fact, the exact steps necessary to determine the resources possessed by Technology, steps which would of necessity precede the offering of these resources to the Government.

The report of the committee was favorably received. Upon motion of Harold E. Kebbon, '12, seconded by Arthur T. Bradlee, '88, it was voted: "That a committee for mobilizing Technology's resources be appointed by the chair, in accordance with the report of the preliminary committee presented by Mr. Litchfield tonight; that the committee consist of not less than twenty-five members, and that there be appointed from that number an executive committee of not less than five, with power to increase its own number and also that of the general committee as it may seem fit. This committee shall be empowered to adopt its own budget and to raise funds for prosecuting its work."

The committee appointed was called the Committee on the Mobilization of Technology's Resources and consisted of the following: Executive Committee — I. W. Litchfield, '85, chairman, Merton L. Emerson, '04, James P. Munroe, '82, Raymond B. Price,

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'94, and Charles A. Stone, '88; General Committee — Members of the Executive Committee and George J. Baldwin, '77, William H. Bixby, '70, W. H. Bovey, '94, Coleman du Pont, '84, S. M. Felton, '73, Edward M. Hagar, '93, Edmund Hayes, '73, Morris Knowles, '91, P. W. Litchfield, '96, Frank W. Lovejoy, '94, E. C. Lufkin, '83, John L. Mauran, '89, H. P. Maxim, '86, E. B. Phelps, '99, T. W. Robinson, '84, E. W. Rollins, '71, F. E. Shepard, '87, F. A. Smythe, '89, H. M. Waite, '90, Edwin S. Webster, '88, W. R. Whitney, '90, C.-E. A. Winslow, '98, and F. W. Wood, '77.

Mr. Litchfield naturally, as chairman of the executive committee, was chiefly responsible for its work and although busy with other interests he at once took steps to carry through the program adopted. Mr. Litchfield kept in touch with Doctor Hale and Doctor Godfrey and also had frequent interviews with Howard Coffin of the Council of National Defense, who at this time was regarded as one of the chief authorities on pre-



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STUDENTS IN ONE OF THE AVIATION SCHOOLS FALLING IN FOR CLOSE ORDER DRILL

paredness. As a result of these interviews Mr. Litchfield was able so to plan the operations of the committee as to co-ordinate the demands of the Council of National Defense and those of the National Research Council, but little attention seems to have been paid to the requirements of Army or Navy.

One of the first steps taken was to arrange for the use of the January number of the *Review* for the year 1917 as a forum for discussion of preparedness. All alumni were requested to write stating what service, in their opinion, Technology and Tech men could render in case of an outbreak of war. The replies received showed every shade of opinion and every type of mental attitude. C. H. Parker, of the class of 1895, in particular, sent in an excellent discussion quoted from an article written by himself for the June, 1916, number of *Edison Life*. A very large number of men, especially from the classes about the year 1900, seemed to have already given the matter much thought and to have seen clearly that any attempt at preparedness with a volunteer military system would be utterly futile.

Letters were also sent to local associations urging them to organize to aid the move-

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ment for preparedness, especially encouraging prompt replies to circulars which were to be sent out. The replies were as interesting as those from individuals. The association at Milwaukee declined to aid the movement. Many of the discussions elsewhere showed a tendency to concentrate entirely on the industrial problem, neglecting military needs. At least one club three days before the declaration of war held a meeting at which the major part of the evening was given up to the discussion of "What is 'Preparedness?'" and "Preparedness for Peace." Others on the contrary, notably the association at Pittsburgh, seem to have fully grasped the situation and adopted a program designed not only to provide for industrial preparedness, but also to promote universal military service and provision of reserve officers.

Work among the undergraduates was not neglected. On February 1 a committee was appointed by the Institute Committee to determine how the undergraduates of the Institute could render most acceptable service. This committee, which consisted of K. C. Richmond, '17, chairman, A. E. Keating, '17, and A. F. Benson, '17, acting under the advice of Major Cole and Registrar Humphreys, of the faculty, spent four weeks in consulting officers of the Army and Navy and men of influence in civil and industrial life to obtain a consensus of the best-qualified opinion as to the proper course to be pursued. At the close of this investigation a mass meeting of the students was called and the committee reported its findings; these may be summed up by stating that it was found that the undergraduates could render best service by continuing their education until such time as they were qualified to serve either as civilian experts or as officers in the Army or Navy. The committee suggested that all men should be physically examined to determine whether or not they would be able to serve in the latter capacity, and those found able to do so should enlist in the Officers' Reserve Corps as soon as a branch of that organization was established at the Institute.

It has already been shown how this policy, which was identical with that independently determined upon by Doctor Maclaurin, became the guiding policy of the Institute throughout the early stages of the war. It has also been shown how after the declaration of war many of the functions of the undergraduate preparedness committee were taken over by the Joint Committee for National Service, but the policy remained unchanged.

The most important work along preparedness lines, however, was done by the Committee on the Mobilization of Technology's Resources, in gathering material for a card index of Technology alumni, together with their special qualifications along technical lines. The questionnaires sent out included requests for information under twenty-five heads and two hundred and thirty-nine subheads, which included practically every type of service ordinarily needed in connection with military preparation, with the exception of those which were regarded as of a strictly military nature. In this respect the questionnaire presents considerable contrast to that sent out by the American Legion (not to be confused with the present organization of the same name) about a year previously, in which more than half the questions dealt with experience which might be considered as military or as forming a basis for military training. Military and naval service, however, were provided for under the "Principal Question," which was — "In what capacity do you think you can give your best service? This service may be in the industrial, professional, or military field. Your card will be indexed in accordance with this information."

That more stress was not laid upon military requirements may seem surprising until the attitude in official circles in this country and abroad in the early part of 1917 is taken into consideration. It must be remembered that the attitude of the American people up to this time had been without parallel in European history, and European diplomats fully believed that the American people actually were "too proud to fight." Under these conditions they had instructed their representatives to give the United States to understand that if she entered the war no military aid would be required from her, since it was feared that should the American people believe that they would be called upon to furnish men they would not enter the war at all. It will be remembered that Mr. Balfour, Ex-Premier of England, even at a later date, came to this country with the message to the effect that all which would be asked of the United States was money and munitions, and it was not

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CADET PILOTS STUDYING RADIO

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until Marshal Joffre made his dramatic demand, "We want men," that the true nature of our participation in the war was realized.

The questionnaires were sent out about the first of January. Replies were still coming in after the middle of April. Upwards of six thousand were received—the largest number which had ever responded up to that date to a Technology circular. The results were carefully tabulated and card-indexed according to a system worked out by Mr. Litchfield. At the outbreak of war the Committee on the Mobilization of Technology's Resources had roused Tech men throughout the United States to the necessity of industrial and military preparedness. It had insured a definite policy on the part of the undergraduates and had succeeded in gathering, classifying and indexing a great amount of most valuable information of which, as we shall see, the Government was able to make excellent use.

While the Committee on the Mobilization of Technology's Resources was directing its campaign from Cambridge, a more or less independent movement originated in the Middle West under the auspices of the Technology Clubs Associated. The object of the associated clubs had been that of providing reunions at points other than Boston. It had been determined to hold the meeting for the year 1917 at Cleveland, and it was decided that the chief subject for discussion on this occasion should be "Technology's Opportunity for Service." This meeting was held on April 19, 20 and 21, 1917. Many plans were proposed for aiding the Nation. It seemed to be the consensus of opinion that the policy which had up to this time been followed, of directing all efforts from Boston, was unwise and that the Institute should be represented by an office established in Washington, D.C. A motion to this effect was carried, and after some discussion it was voted to appoint a committee independent of the Committee on the Mobilization of Technology's Resources. The chairman of this new committee was Van Rensselaer Lansingh, '98, while Maurice R. Scharff, '09, was appointed executive secretary. On April 26 this committee met and determined to establish an office in Washington in accordance with the ideas which had been advanced at Cleveland.

Mr. Scharff at once proceeded to Washington and organized the new bureau, which

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was located in the Union Trust Building. It was planned to issue a weekly bulletin to be sent to the secretaries of the Technology Clubs throughout the country and to all men who were interested, furnishing the latest information on all the opportunities for government service. The various clubs throughout the United States also organized local committees to work on all important problems, notably those relative to manufacture and food production, to harmonize the activities of the various committees which might be formed and to bring these in touch with the main committees in Washington and Cambridge. As a matter of fact the co-operation between these committees was very close. The card catalogue of Tech men which had been prepared by the Committee on the Mobilization of Technology's Resources was found invaluable and was the means of locating men needed in various governmental bureaus and departments, and Mr. Litchfield was soon spending most of his time in Washington, where he worked in co-operation with Mr. Scharff.

The activities of the Washington bureau seem to have been still more or less concentrated on the idea of industrial service—of protecting industry rather than encouraging Tech men to take an active military part, or of providing the military forces with skilled men. The first bulletin, issued on May 17, laid stress upon the inadvisability of volunteer enlistment and upon the opportunities offered in Civil Service, while others of later date laid stress on insuring exemption from military service for skilled men in industry. It would appear that the committee overlooked the fact that skilled men were needed in the Army and Navy as well as in industry. Had the policy advocated been carried out to the logical conclusion practically every man in the United States, except those already in the Regular Army, would have been excused from military service, since it was obvious, that very few men had been trained as soldiers and that nearly all men would be most skilled in the occupations in which they were engaged. Nevertheless, little harm appears to have resulted, for the government policy from the start was, so far as possible, to obtain men for the military service where they could be ordered to such duties as were required, and as a result eighty per cent of the men actually placed by the Tech Bureau were commissioned as officers in the Army.

The Technology Women's Association also took up the movement for preparedness. A meeting was held late in April in the Emma Rogers Room at the Institute at which Miss Mabel K. Babcock, '08, President of the Association, was empowered to appoint a committee to prepare questionnaires adapted to Technology women, with the object of forming an index in the same manner as had been done by the Committee on the Mobilization of Technology's Resources. It is interesting to note that practically every member of the association was already engaged in work of an essential nature, particularly in ship-drafting rooms and in hospitals.

One of the chief objects of the Washington Bureau had been to distribute information to the various Technology Clubs and Tech men generally through weekly bulletins. This method proved rather slow and awkward. Moreover the undergraduates were in need of information and the plan did not provide for them. There was not a sufficiently close bond between the alumni and the undergraduates, and it was felt that some better means of maintaining touch was needed.

It occurred to Professor Henry G. Pearson of the faculty that *The Tech* might extend its field to include dissemination of information from the Washington office and also to supply the alumni generally with information relative to the undergraduates. About June 20 Professor Pearson took up the idea with Paul C. Leonard, '17, acting manager of *The Tech*, who was at that time at Camp Cunningham. Details were arranged, and it was decided to submit the plan to the Committee on Mobilization of Technology's Resources. On the twenty-seventh of June the matter was placed before James P. Munroe, '82, who, as we have seen, was a member of the committee.

It may be well to state here that, largely through Mr. Munroe's modesty, it has been very difficult to determine just how much of a part he played up to this point in the work of mobilizing Technology's resources. It may be said, however, that wherever an activity was in progress he appears to have been present or was exercising an influence which tended towards co-operation, co-ordination and efficient organization of the various

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and more or less independent movements which during this period had been working toward a common end. He had frequently made trips to Washington to confer with Doctor Godfrey and Doctor Hale; he had been present at the meeting of the Technology Clubs Associated; and, as will be seen later, he had been carrying on work of an important nature in making preliminary arrangements to establish a Tech Bureau in Paris. Furthermore, as treasurer of the Committee on Mobilization he had been responsible for all finances connected therewith. Mr. Munroe approved the new plan and it was at once presented to and approved by the committee.

The first issue of the paper under the new arrangement, which has come to be known as *The War-Time Tech*, appeared on July 3, 1917. In this issue it was announced that the publication was prepared to give:

"News straight from the live alumni center at Washington, in the heart of things.

"News from the fifty local Technology Associations all over the country.

"News from the Technology center in Paris, in touch with all those in the fight.

"News from the Summer Camp, from Plattsburg and from all other training camps where Institute men may be.

"News of various activities of the Institute itself and of its teaching staff.

"*News twice a week*, fresh, condensed, accurate, vital to every man and woman closely or remotely allied with Technology."

The announcement was subscribed to by representatives of the Massachusetts Institute of Technology Alumni Association, Mobilization Committee, Technology Clubs Associated, *The Tech*, and the War Service Auxiliary, of which Mrs. Edward Cunningham was chairman and of which more will be said later.

The Tech as an alumni and undergraduate organ was not organized on a perma-



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INTERIOR OF ONE OF THE BARRACKS OF THE STUDENTS' ARMY TRAINING CORPS UNIT

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ment basis until September 2, at which date an alumni editor was appointed for *The Tech* and financial guarantees were given which would insure the success of the program. Even before this had been arranged the scheme had worked out successfully and the paper was being mailed to subscribers throughout the United States and abroad. Arrangements were made by which a number of copies of *The Tech* were forwarded to the Paris Bureau, where the names of Tech men in the American Expeditionary Forces were kept on file and from which the papers were forwarded. As time went on the overseas circulation increased to over six hundred. Through the work of the Correspondence Committee (see page 66) and the War Service Auxiliary (see page 69) the addresses of most of our men were available, and *The Tech* was then mailed directly to the men, finding its way to Tech men in every portion of the world — in Red Cross hospitals, in posts of command and in dugouts on the battlefield. The experiment of *The War-Time Tech* was an unqualified success and may have paved the way for future and very desirable co-operation between the undergraduates and the alumni.

Another activity which became closely associated with those already described was the Massachusetts Institute of Technology War Service Auxiliary (see page 69). This organization originated, as did so many other Technology activities, with Mrs. Cunningham and a number of other well-wishers of the Institute. First under the name of "Friends of Technology" and later under the title of the Massachusetts Institute of Technology War Service Auxiliary, they undertook to provide for the comfort of Tech men who might enter the Army or Navy and to keep them as cheerful as circumstances would permit. To Mrs. Cunningham is also due the establishment of the Paris Bureau, the formation of the War Service Auxiliary Workroom, where many articles were made and shipped to Tech men abroad and in which relief work was carried on by members of this organization during the Halifax disaster and during the terrible epidemic of influenza in the fall of 1918. Mrs. Cunningham took up the question of forming the auxiliary with the Committee on Mobilization about May 14, and in early June the work was well under way. From that time on it continued to enlarge, until it became, with the Paris Bureau, the chief auxiliary war activity carried on in the name of Technology.

The first of July, 1917, found four separate and distinct organizations connected with the Institute performing service of one kind or another; namely, the Committee on the Mobilization of Technology's Resources, the Washington Bureau of the Technology Clubs Associated, the War Service Auxiliary and the committee of the Women's Technology Association. The object of these organizations was nearly identical. It was natural that they should draw together, and an influence in this direction was *The War-Time Tech*.

A crisis occurred in July, 1917. This crisis was brought about by the fact that three of the men who had been chiefly responsible for carrying on the work in Washington and elsewhere entered the government service. Within a few weeks of one another, James P. Munroe was appointed one of three lay commissioners on the Federal Board for Vocational Education (see page 341), Mr. Litchfield was appointed one of five directors to take charge of the Technical and Engineering Division of the United States Public Service Reserve Board (see page 339) and finally, Mr. Scharff was called away to take charge of the construction of Camp McClellan, Alabama, as supervising engineer under the Cantonment Construction Division of the United States War Department (see page 318).

It was evident that arrangements must be made at once for unifying the various activities, and with this end in view on July 19, 1917, a meeting was called in Washington at which representatives from the Executive Committee of the Technology Clubs Associated, from the Committee on the Mobilization of Technology's Resources, from the War Service Auxiliary and from the Joint Committee on National Service were present. At this meeting it was voted to consolidate all of these efforts under a single committee to be known as the Massachusetts Institute of Technology Committee for National Service. This committee was made up as follows: James P. Munroe, '82, chairman; I. W. Litchfield, '85, vice-chairman; F. A. Smythc, '89, vice-chairman; Francis R. Hart, '89, vice-chairman (ex-officio); Walter Humphreys, '97, treasurer, (ex-officio); A. Farwell Bemis, '93, Merton

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L. Emerson, '04, Charles W. Eaton, '85, Frederic H. Fay, '93, Lester D. Gardner, '98, Morris Knowles, '91, Raymond B. Price, '94, and H. W. Tyler, '84.

On July 23, 1917, Professor Henry G. Pearson arrived in Washington, as did also John M. DeBell, '17, who had up to that time been acting as an instructor at Camp Cunningham and who had been wired to report in Washington to take charge of the office. On the thirty-first Paul C. Leonard, '17, also arrived and remained in charge for a short time. The work continued to increase rapidly, though its nature differed somewhat from that of the early days. At that time the Government had been able to obtain from the Institute card catalogue the names of large groups of men able to perform certain kinds of work and had availed itself constantly of this privilege. Inasmuch as Mr. Litchfield was now in government service and had taken with him the Institute card catalogue, this information was now directly available in the government departments, although it was also still available to the Tech Bureau. The Bureau, however, still found an immense amount of work in handling individual cases. Tech men were constantly arriving in Washington, seeking positions in which they might be of especial value. In the majority of such cases the Bureau was able to direct them to the proper officials without delay. In the same manner inquiries from Tech men in government service who were attempting to complete their organizations were frequently answered by sending the men desired within a few hours. Considerable work was also done in determining the status of men who through conflicting regulations of various departments had found themselves in ambiguous positions. Thus certain members of the Engineer Officers Reserve Corps, although commissioned officers, had been called by their local draft boards and ordered to report as privates to various cantonments. Inquiries at the Adjutant-General's Office brought the reply that they would be obliged to report at once. Inquiries sent to the Provost-Marshal's Office brought word that they would not be required to do so. In such cases the Bureau was able to give valuable assistance in bringing the discrepancies to the notice of the proper officials and obtaining authoritative rulings.

Work of this kind was continued throughout the summer, but it became increasingly difficult to keep up the interest of the alumni in the work. The reason for this was twofold. First, the vast majority of the alumni were putting their entire time upon war problems. Second, so many appeals, orders, regulations and questionnaires had been sent out that printed matter no longer made the slightest impression upon the average mind. It was felt that something must be done to bring to the alumni what the Institute and the Institute men were doing. The duty of arousing interest under these conditions fell naturally to the field manager of the Alumni Association. Mr. Litchfield had just resigned this position and no successor had been chosen. It occurred to Mr. Munroe that Professor Pearson of the English Department might perform this duty. Professor Pearson heartily concurred and early in August, after having examined all data available at Washington, he started upon a tour of the United States, visiting the Technology Clubs at Dayton, Cincinnati, Indianapolis, St. Louis, Chicago, Detroit, Cleveland, Akron, Buffalo, Rochester and Schenectady. At each place he visited as many Tech men as possible, went through factories operated by them and in the evening addressed the local associations. At each point as he went on his trip he learned more and more of the work which Tech men were doing. Thus at Detroit he found Orton W. Albee, '93, who had during his younger days done work for the United States Ordnance Department, closing up his private business and making preparations to return to government service (see page 126, Roll of Honor). Again, in Cleveland, Edward C. Wells, '92, of The Platt Iron Works Co., informed him that the plant had been entirely remodelled to take up the manufacture of shells, particularly a six-pounder type for naval guns. At each stop he told those who gathered what he had seen and heard and so stimulated interest in the Institute and its sons. It is hard to estimate the precise value of the results of the trip, but an excellent preparation was made for other measures which followed.

On September 6, 1917, the Committee for National Service held a meeting in Washington which was attended by the usual members and also by F. R. Hart, '89, W. Humphreys, '97, and H. E. Kebbon, '12, representing the Executive Committee of the Alumni Association; F. H. Fay, '93, representing the Association of Class Secretaries; A. F. Bemis,

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'93, and H. W. Tyler, '84 of the Finance Committee of the War Service Auxiliary and J. M. DeBell, '17, who was still in charge of the Washington office. Mrs. Edward Cunningham and Mrs. A. J. George attended one of the sessions of the committee, representing the War Service Auxiliary. Professor Pearson appeared before this committee and rendered a report of his experiences in the Middle West and considerable discussion followed. As a result it was voted that the Washington office should be continued; that *The War-Time Tech* should continue; that the Technology Workroom and the Paris Bureau (see page 75) should be supported; also, that money should be raised to carry on these various works; and finally that a complete record should be kept of all Technology men performing any kind of service in connection with the war. Arrangements were made for sending out forthwith a general appeal for information regarding the location and occupation of all alumni and former students and, as will be seen, the foundation was thus laid for the ultimate publication of TECHNOLOGY'S WAR RECORD.

In October, 1917, Mr. DeBell who had been in charge of the Washington office since July, entered the military service of the United States as a second lieutenant of Field Artillery. He was subsequently promoted to the grade of first lieutenant, and in this capacity served overseas, taking part in the Aisne-Marne offensive, St. Mihiel offensive, and Meuse-Argonne offensive, besides work in several of the defensive sectors. Raymond W. Ferris, '08, was appointed to succeed him.

At the October meeting of the Alumni Council it was necessary for Mr. Munroe to resign the chairmanship of the committee and, as a result, a new committee, with the following personnel, was formed: Executive Committee — James W. Rollins, '78, chairman; I. W. Litchfield, '85, F. A. Smythe, '89, and Charles W. Eaton, '85, vice-chairmen; A. F. Bemis, '93, M. L. Emerson, '04, F. H. Fay, '93, L. D. Gardner, '98, Morris Knowles, '91, R. B. Price, '94, D. G. Robbins, '07, and H. W. Tyler, '84; Finance Committee — H. W. Tyler, '84, chairman; A. F. Bemis, '93, George L. Gilmore, '90, and Walter Humphreys, '97, treasurer.

From this time on the activities of the committee took on a markedly different aspect. During December Mr. Ferris reported that the work at the Washington Bureau had decreased to such an extent that he no longer considered it advisable to continue the office. It was closed on January 31, 1918.

As the importance of the Washington office dwindled, however, the importance of the financial requirements of the War Service Auxiliary and the Paris Bureau (see page 75) increased. Up to this date the War Service Auxiliary had been supported by a comparatively small number of persons. The Corporation, under the leadership of Mr. Hart, chairman, had borne the expenses of the Washington office, the Paris Bureau and any deficiency in connection with *The War-Time Tech*, together with most of the overhead expenses of the Committee for National Service. The War Service Auxiliary, however, had need of an income of at least four hundred dollars a month, while other funds were needed for special purposes. Immediately upon its appointment Doctor Tyler's committee attacked the financial problem, using every possible means to get results. Circulars and personal correspondence were used and class secretaries were interested. Dean Burton about this time was making a circuit of the United States Shipping Board Schools and he aided by addressing the Alumni Associations at various points on the subject, and finally Professor C. Frank Allen, '72, made a tour of the various Technology Clubs quite similar to that which had been carried out earlier by Professor Pearson.

The work of the committee was greatly handicapped by the demands of hundreds of rival organizations of town, city, state and nation, each engaged in some work for "the boys" from the home town. Nevertheless by May 16, 1918, \$10,107 had been subscribed by 35 members of the Corporation and \$22,565.75 by 850 alumni. These results were not so large as were desired and the work was continued vigorously. However there was sufficient money to keep the various activities moving.

Another matter which early in December had absorbed the energy of the committee was the organization of a correspondence bureau for Tech men in the Army and Navy. Many Tech men were by this time in the service and a very large number had been assigned to combat divisions in the cantonments of the United States or to organizations of various

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types already in service abroad. It was felt by Mrs. H. P. Talbot that everything must be done to keep these men in touch with home. With this object in view Mrs. Talbot set about learning their addresses and attempted to keep up a regular correspondence with them. The number of men in service increased so rapidly that the work became far too heavy for Mrs. Talbot and such volunteer aid as she could obtain, and it became necessary to arrange for the organization of a regular bureau to carry it on.

Mrs. Talbot accordingly took up the matter with Doctor Tyler and, after considerable discussion with the members of the Committee for National Service and the War Service Auxiliary, a plan was drawn up for the Bureau of Communication. It was decided to make use of the card catalogue in which information concerning all Tech men in the military or naval service of the United States or its allies, and any other Tech men serving at the front, was to be recorded and that this information should be obtained by the fol-



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lowing means — first, a letter should be sent to each man, describing the plan and asking for information regarding himself and other Tech men; second, systematic interchange of information with class secretaries, local secretaries and members of the professional departments should be sought; third, news should be published in *The Tech* and *The Technology Review*; fourth, personal correspondence with the men at the front and their friends and relatives at home should be carried on along the lines already initiated by Mrs. Talbot; fifth, especial personal attention should be given in the case of men killed, wounded or missing; and sixth, ultimate publication should be made by the Alumni Council of the Roll of Honor, giving the names of men who gave their lives in service.

This program was carried out energetically. The Bureau was organized as part of the War Service Auxiliary, in close co-operation with the departmental heads, class secretaries, local secretaries, fraternities, *The Tech* and the Alumni Association, and it continued throughout the war to gather and index information relative to Tech men in the service at home and abroad. The work of this bureau was particularly valuable in the cases of men reported killed, wounded or missing. The American Red Cross was

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operating a similar bureau, but the War Service Auxiliary was able, through the Paris Bureau and through the large number of correspondents at the front, to gain accurate first-hand information which at times was of the greatest possible value.

From this time forward for practically a year there was little change in the work of the Committee for National Service. The chief activities of the committee were those of Doctor Tyler's sub-committee which had charge of the raising of the finances. This work continued through the year, at no time gaining a sufficient surplus to make the situation entirely safe, yet never falling behind or necessitating the curtailing of any of the various activities. Up to March 1, 1919, this committee had raised about \$49,000, of which about \$17,000 was subscribed by members of the corporation. At that date \$41,000 had been expended, of which \$18,000 had been used for the War Service Auxiliary and \$11,500 for the Technology Bureau in Paris. Hostilities had, of course, by this time ceased but with the great number of Tech men still in Europe it was deemed advisable to continue the Bureau, which was a part of the American University Union in Europe until August 1, 1919. The cost of its maintenance was approximately one thousand dollars a month.

Toward the close of the year 1918 it appeared that no resumption of hostilities was to be expected and that the war was to all intents and purposes over. Under these conditions the question naturally came up of recording the history of the various activities in which Technology and Technology men had taken part during the struggle. The collection of the material for such a history had already been started by the Bureau of Communication of the War Service Auxiliary. Early in December Mrs. Sedgwick, director of the workroom of the War Service Auxiliary, wrote to Doctor Tyler suggesting the publication of a book giving the history of Technology's efforts during the war. Doctor Tyler immediately forwarded this proposal to James W. Rollins, '78, Chairman of the Committee for National Service. The matter was then taken up at the January meeting of the Alumni Council, and it was voted that the President appoint a committee to consider the preparation of the war record of Technology. The committee appointed was H. W. Tyler, '84, chairman; Walter B. Snow, '82; T. C. du Pont, '84, ex-officio; Harry H. Young, '91; G. D. W. Marcy, '05; Walter Humphreys, '97, ex-officio; and H. G. Pearson, while J. P. Munroe was asked to represent the corporation informally. Five thousand dollars, representing the balance of the fund collected for the work of the Committee for National Service, was made available as a working capital. The committee held its first meeting upon June 6, 1919, and arranged at once for a dinner and meeting of the class secretaries on June 12. At that dinner Doctor Tyler outlined the general plan of the book, and after considerable discussion a tentative table of contents was drawn up.

It was originally intended that the book should be compiled by a number of editors who should handle respectively the various chapters. It developed, however, that the writing of any one of these chapters would be a matter of considerable time and effort and practical considerations required that the data be gathered through the agency of a central office. It was accordingly decided to put the entire publication of the book into the hands of a single salaried editor. On June 30 arrangements were completed by which J. H. Ruckman, '10, just returned from overseas service, was appointed to take charge.

When the War Service Auxiliary passed out of existence (see page 72) the records of that organization were turned over to Mr. Ruckman, as a basis for the new publication, while members of the staff of the War Service Auxiliary became the nucleus of an office force. Work was begun at once and progressed steadily from that date.

Throughout the period of publication the editor was given the greatest possible aid by members of the committee, notably, by Messrs. Young and Marcy on matters of publication; by Doctor Tyler and Mr. Humphreys on matters of general policy; and by Professor Pearson on matters relating to style and appearance of the book. Great assistance has also been rendered in the publication of the RECORD, by the Alumni Association, class secretaries, *The Tech* and the *Technology Review*, which have steadily kept before the alumni the necessity of sending in information.

At the meeting of the Alumni Council in October, 1919, the Massachusetts Institute of Technology Committee for National Service reported that it considered its work

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accomplished. It was authorized to pass out of existence, all funds being transferred to the WAR RECORD.

The War Service Auxiliary had suspended operations on June first and the Paris Bureau on August first. With the publication of the WAR RECORD, the war activities of the Institute and of the auxiliary organizations carried on in its name are brought to a close.

THE WAR SERVICE AUXILIARY

The formation of the War Service Auxiliary, which has already been mentioned, was first suggested in the spring of 1917 by Mrs. Cunningham, the widow of Edward Cunningham, '91. The following history of its activities is given by its executive secretary, Mrs. A. J. George.

"In July, 1917, the Alumni Council empowered the Massachusetts Institute of Technology Committee for National Service to establish the War Service Auxiliary. Mrs. Edward Cunningham, in conference with Messrs. Munroe, Tyler, Sedgwick, Bemis, Hart and other Technology men, had sought some means of rendering assistance to Technology men engaged in the war and to the families they had left behind.

"At first it was thought that existing committees might carry out this undertaking, but it was soon apparent that a new organization must be formed. Therefore Mr. Munroe, as chairman of the Massachusetts Institute of Technology Committee for National Service, named a central committee, with Mrs. Cunningham as chairman, also advisory and honorary committees to work out some plan which should place at the disposal of men in service the practical expression of the good-will of the Technology constituency. Although at this time the obvious needs were few, it was the endeavor of those responsible for the affairs of the Auxiliary to build up an organization strong enough to bear the load which later emergencies might put upon it and flexible enough to adapt its activities to the ever-changing conditions incident to a state of war. Every effort was made to co-ordinate the work with that of existing organizations, and to this end the Auxiliary at once affiliated itself with the New England Division of the American Red Cross.

"It was determined in the beginning that the work of the Auxiliary should not be confined to Technology men, but just as far as possible should place the full power of Technology behind all men in national service.

"The work was always of an intimate and personal character, much of it too subtle to be set forth in printed records; the following summary is given to indicate something of the activities of the Auxiliary for more than two years, during which there was a constant endeavor to furnish to the men in the war a support worthy of the highest traditions of the Institute.

"The initial undertaking of the Auxiliary was to locate the Institute men already in service, to add to the list as soon as men entered the service and to offer to their families every possible assistance in any of the many emergencies incident to war conditions. From a roster of less than three hundred, this list expanded to more than thirty-nine hundred names which are on record today. By constant interchange with the Technology Bureau in Paris and with the Alumni Office, this list was kept corrected as far as was humanly possible in a time when ranks, grades and stations were rapidly shifting. The list was frequently used by class secretaries, departmental heads, fraternities and others to locate special groups of men.

"From the office of the Auxiliary, correspondence was carried on with the men and with their families, and a fund of information was thus assembled which proved of great value in many emergencies. Families requested detailed news in the days when the crowding of mails and cable wires occasioned great anxiety. Information was usually promptly obtained for families who often had waited long weeks because they did not happen to know the steps necessary to take to secure this desired information. "I cannot tell you how my visit to you eased my mind and heart," wrote a father, who had received no direct message from his son for four anxious months; this is an illustration of the words of grateful appreciation which came from scores of families of Technology men. Cables were sent through the Bureau in Paris and later details concerning wounded men

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or men killed in action were obtained. An 'honor roll' was assembled containing the names of all Institute men who had given their lives in the war and a collection of photographs and biographical material was made to accompany this 'honor roll.' Similarly a list of citations and war honors was compiled. Cards of holiday greetings were sent in 1917 to the fifteen hundred men then known to be in service, and in 1918 more than three thousand Christmas cards were dispatched.

"When the Auxiliary began its work the organizations which later took over the welfare work for the men of the Army and Navy were just beginning their labors. Great numbers of men were in officers' training camps; some had already gone overseas; others were to go into cantonments. It was soon found advisable to open a workroom where supplies might be provided for these Technology men in service and for those under their command and where some contribution might be made to help meet the needs of our devastated allies. This workroom, under the devoted directorship of Mrs. Sedgwick, continued its activities until the late summer of 1919; its important work receives treatment in a separate section of the chapter. The Auxiliary, through its Book Room Committee, sent to the Technology men in camps here or in service overseas more than five thousand volumes of current interest, and mailed to individuals between October, 1917, and February, 1919, more than sixteen hundred parcels of magazines and newspapers. The American Library Association was at all times most helpful in reinforcing this phase of our work.

"The unflinching cordial response of Mr. Lansingh and later of Mr. Gibbs made possible the closest co-operation between the Auxiliary and the Technology Bureau in Paris. This co-operation was so close that it is difficult to disentangle the reports of the work of the Paris Bureau and of the Auxiliary, nor perhaps is it desirable so to do. The tribute from Doctor Selskar Gunn, M. I. T. '05, written on July 17, 1919, sets forth the accomplishment of the Bureau and the efforts of the Auxiliary to reinforce its tasks: 'I think I have probably had as good an opportunity as any Tech man to see the effect of the distribution of the splendid treasure chests sent over to Paris, and the Auxiliary can certainly feel proud of what you women did for Tech men.' From men overseas with the American Expeditionary Forces, from men who had been long with British and Canadian troops came many messages of gratitude for this manifestation of Technology spirit. A lieutenant of engineers (Light Railways) wrote, 'With what you folks at home have done for us along with the Tech Bureau over here, I have yet to meet a Tech man who does not feel that he belongs to the best college there is.' A captain of artillery wrote, 'As a football team goes into the game with renewed vigor when cheered on by its supporters on the side lines, so do our boys go over to France determined to win, for they know that the people at home are backing them to the limit.' Mr. Lansingh, after a year of critical observation as director of the Technology Bureau in Paris, wrote: 'I wish I could convey to you an idea of the value of the work which your Auxiliary has done for the men abroad. While the material aid accomplished was great, I feel sure it was exceeded by its moral value.'

"When the Auxiliary began its activities, government schools had already been established at the Institute, attended by men who came from all sections of the country and who had no previous Technology affiliations. These schools brought not only the problems which the administrative and teaching bodies solved so efficiently, but also those other problems which must arise when men are suddenly transferred from civilian pursuits to military life. 'One does not appreciate what M. I. T. really stands for until he has left it, and finds the *spirit* of Technology following him,' wrote Dinsmore Ely from France just before he was killed. It was to interpret this spirit of Technology to those who were for a time stationed at the Institute that the Auxiliary extended its care and hospitality to them. A special fund, created by the gifts of those who generously sustained Technology's work, was used to carry on a Boston clubroom, to provide for Sunday teas, to maintain the hospital visiting and to meet other emergencies which could not properly be cared for by alumni funds. At the request of the naval authorities, the hostess work at the Recreation Building of the Naval Aviation Detachment was maintained.

"There were thousands of men in these government schools at the Institute during

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the period of the war, many of them far from home. With the approval of medical officers these men were visited when sick and in hospital; when their parents were summoned, these were looked out for, and if death came, the Auxiliary, through its workers, did all that it could to assist these families removed from home surroundings. This work was done with the active co-operation of the Red Cross. From January, 1918, to November of the same year, a total of 2,709 visits were made in twenty-two different hospitals by accredited visitors on 367 men from the government schools. A patient at the Naval Hospital wrote, 'We have often said that you looked after the navy pilots at Tech better than any other group of boys in the service was looked after.' At the time of the influenza



MRS. ARTHUR D. LITTLE AND MRS. H. M. GOODWIN AT THE WORKROOM OF THE WAR SERVICE AUXILIARY

epidemic in the fall of 1918, the Auxiliary was asked to provide special nursing care at the emergency hospitals of the Aviation Detachment, and later convalescent homes were established. Mrs. Arthur T. Bradlee and her associates at Chestnut Hill, Mr. and Mrs. Henry F. Bigelow at Lancaster, Mrs. Cunningham at Westwood and Augustus Hemenway, Esq., at Milton provided for a total of 1,399 days of convalescent care. Special contributions of more than four thousand dollars made possible this work and also the provision of extra nursing at a time when care and nursing were very large factors in the recovery of patients.

Through the generosity of Albert F. Bemis, '93, it was possible to respond to Colonel Cole's request that the Auxiliary furnish nurses and special supplies to the Students'

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Army Training Corps hospital. From October 31 to December 23, 1918, 151 patients were admitted to this hospital, and the application of Mr. Bemis's gift worked a notable change in the welfare of these men.

"During the few weeks when the Students' Army Training Corps and Students' Navy Training Corps were mobilized at the Institute, a committee of which Mrs. Henry P. Talbot was chairman, extended the hospitality of the Institute to 284 members of these corps who used the Emma Rogers Room as a meeting place with families and friends.

"The financial support of the Auxiliary came in part from the alumni who through the Massachusetts Institute of Technology Committee for National Service appropriated the sum of \$18,500 to the Auxiliary treasury. Other friends who wished to sustain the work gave the sum of \$12,797.40, making a total of \$31,297.40. Of this sum \$12,387.19 was applied to the purposes of the workroom, \$2,115 was paid from the special emergency fund, \$1,530.03 was used for the maintenance of the Students' Army Training Corps hospital and \$4,000, as cited above, was available during the influenza epidemic or convalescent care; the sum of \$7,449.13 was expended in the twenty-three months from July 1, 1917 to June 1, 1919 for all other activities of the Auxiliary and for printing, postage, telegrams, cables, office furniture and clerical assistance. A great part of the work at headquarters was carried on through volunteer workers so that the upkeep of the office was held at the lowest possible figure.

"On June 1, 1919 the emergency demands of war, to meet which the Auxiliary had been created, had ceased. At that time the Auxiliary turned over to the Massachusetts Institute of Technology Committee on War Records its files and the balance of money from all sources remaining in its treasury.

"It was a high privilege for the members of the Auxiliary to attempt to interpret the will of the Committee for National Service in reinforcing the splendid work of the men of the Massachusetts Institute of Technology who bore so noble a part in the war. Whatever success attended these efforts was largely due to the generous aid of the many friends of Technology who did a part of their work through the Auxiliary, and to the steadfast support of the Massachusetts Institute of Technology Committee for National Service."

TECHNOLOGY WORKROOM OF THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY WAR SERVICE AUXILIARY

One of the most important features of the War Service Auxiliary was the Workroom, the activities of which are recorded as follows by Mrs. W. T. Sedgwick, its director.

"The establishment of a workroom in connection with the War Service Auxiliary was suggested by Mrs. Edward Cunningham to Mrs. William T. Sedgwick in a letter of July 31, 1917. Mrs. Sedgwick's co-operation was asked in developing a plan for a workroom where women affiliated in any way with the Institute might prepare supplies for Technology men in service and for those war sufferers in Europe whose special needs would be brought to the attention of Institute men who, like Professor Gunn, were working in these stricken areas.

"The Central Committee had already received from Professor Gardner the offer of a large room on the first floor of the Rogers Building; it was felt that with Mr. Lansingh at the Paris Bureau to distribute supplies to Technology men overseas and with Professor Gunn to advise concerning general relief work a dignified appeal might be made for support, and it was hoped that the workroom might undertake an enterprise on a scale sufficiently generous to be worthy of the Institute.

"After personal interviews and further correspondence a workroom was opened on October 1, 1917, in a room in the Rogers Building. No more accessible or convenient location could possibly have been found. The unflinching courtesy and helpfulness of the Architectural Department, and especially of its chairman, Professor W. H. Lawrence, was a prime factor in its successful operation.

"In response to an invitation to all who might wish to identify themselves with a Technology war workroom, an audience gathered on the opening day to listen to Miss

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Theodora Dunham, of New York, recently returned from very interesting experiences in the hospitals of France. Miss Dunham's vivid and eloquent narrative gave the needed personal touch with war conditions that made all who heard her desire to do their utmost to relieve our suffering friends and allies across the sea.

"Mrs. Edward Cunningham was made chairman of the Workroom Committee, Mrs. W. T. Sedgwick, director of the Workroom, Miss Evelyn Walker, assistant director, and Mrs. R. P. Bigelow, treasurer, to whom were added Mrs. Ralph Adams Cram, Mrs. Harry M. Goodwin, Mrs. Charles T. Main, Mrs. Everett Morss, Mrs. James P. Munroe, Professor Harry W. Gardner and Professor William T. Sedgwick, to aid in council and decisions.

"Room No. 16, Rogers, was equipped with convenient cases for holding materials on shelves, with long sewing tables covered with white enamel cloth, with drop-lights and with sewing machines, two of which were run by motor power. Almost all these necessary tools for effective work were loans of friends; and since all rent, heat, light and janitor service were furnished by the Institute, the overhead charges were inconsiderable.

"A printed appeal stating the scope and purpose of the Workroom was sent out immediately after its opening to every woman within a reasonable distance who had any connection with Technology through husband, father or brother in times past or present. Such volunteers were further informed that 'the program is to be elastic enough for work to be done at home by women unable to go to the Rogers Building and to provide for emergencies and special cases.' Books were begged to fill portable boxes to present to men in camp and hospital, and this detail of the organization proved to be one of the most cheering and welcome of all that was achieved. Scrapbooks were made for those too ill to hold a bound volume, and magazines and papers in enormous quantities were sent wherever it was learned they would give pleasure. Later this department was transferred to the Auxiliary proper.

"Affiliation of the Auxiliary with the Red Cross was one of the first details to be arranged, and to their care was entrusted a large consignment of knitted articles and comfort bags, numbering 322 articles, which it was hoped would reach the University Union in Paris in time for Christmas distribution. Later, when a ruling was made that the Red Cross could not receive anything for especially-designated institutions, the Workroom Committee had to rely entirely upon parcel-post boxes, or upon trunks taken over as personal luggage by the courtesy of friends going to Europe on war errands. For this unselfish and often troublesome service the whole organization, on both sides of the Atlantic, stands indebted and here expresses its warmest appreciation and gratitude to each of its kind friends.

"In all, twenty-five trunks containing 6,057 articles and 137 parcel-post boxes containing 2,840 articles were sent to the Technology Bureau in Paris. One trunk was lost upon the torpedoed 'Oronso,' but practically everything else reached its destination. There were in addition 254 articles in parcels of various sizes and kinds taken by individual friends to the Bureau, making a total of 9,473 articles distributed there from the Workroom.

"The Workroom sent to Technology men in American camps 2,994 articles, and to men not of Technology 5,266 articles.

"Besides this primary service, the Workroom shipped directly to Europe, for civilian and hospital relief, ten trunks, eleven large cases and fifty-two parcel-post packages; while constant donations to European relief work were made through the American offices of their societies. The total number of articles thus distributed was approximately 36,382.

"Funds were generously provided for all strictly Technology purposes by the Alumni Council, and, while the war was actively progressing, the Workroom Committee was allowed much freedom to respond to requests from Technology men who were distributing relief in Italy, Belgium and Serbia.

"Technology was the only educational institution in the United States that supplied to its Paris bureau at the University Union a 'Treasure Chest' (the name given by the men there to the trunk or wardrobe of supplies) in which a man could find almost anything, except a uniform, for which he might ask. Nothing was too small to buy, nothing too large to make, if Mr. Lansingh — or later, Mr. Gibbs — indicated it was desirable.

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"At first the room was open two mornings and two afternoons each week, but later the work increased so much that it was open all day except on Saturdays and Sundays.

"The old haunt of the Society of Arts presented an active and cheery picture on winter days, when a considerable group of women was busy at sewing machines or occupied in cutting out garments or in packing trunks and cases to go out on their long journeys. Women who burned to help on the work of saving civilization but who could not go to the center of the struggle hoped they were doing a worthy service, by diligently making up needed packets that would assure those who were more privileged that one purpose moved us here and there. Letters would be read aloud from boys overseas that kindled enthusiasm to work harder, or whose appreciative words of some gift from the 'Treasure Chest' more than rewarded all the toil. Visits from Technology boys who came to bid us farewell and to whom we could furnish some welcome comfort were one of the chief satisfactions of the time — surpassed only by those more rare visits of returning soldiers and sailors who brought their sober, steady eyes to encourage us never to falter and never despair.

"The Workroom never undertook to make surgical dressings but it did supply certain garments for hospital use and it did a somewhat unique service in the nearly three thousand pairs of felt slippers that were made and sent to convalescents in hospitals. Doctor Manning K. Rand and Mr. Clifton Church, not otherwise connected with Technology, cut almost the whole supply of these slippers in our workrooms, and by their unflinching industry won our lasting regard and gratitude.

"Within three months the work outgrew its quarters, and the Architectural Department kindly transferred to the Committee the use of the larger room — No. 10 — where the activity of the organization knew no cessation until its close, almost exactly two years after its opening: *viz*, October 9, 1919. Ample storage was always supplied in the basement.

"From the beginning the Committee desired to be as useful as possible wherever emergencies should arise where it could suitably aid. The first to present itself was the terrible disaster in Halifax by an explosion on a transport of munitions in the early days of December, 1917. For ten days the whole strength of the Workroom was turned to meet the sudden need there, and its doors were open to any and all who were willing to help. For this and all other outside calls, special funds were raised from time to time by the Workroom Committee as the occasion demanded.

"The Committee decided very early in its existence that although the Workroom must stand first and foremost for the benefit of Technology students and graduates in war service at home or abroad, it should also be able to help the needs of our allies. The desperate condition of Italian hospitals in the winter of 1918 appealed very strongly to us and for many months valuable contributions of garments, new and old, and unmade material were sent to the headquarters of the Italian War Relief in Boston for their shipment. In the same way handsome gifts of garments and materials were given to the Serbian relief headquarters, for did not Technology send out in 1917 fifteen young men to that stricken land to fight typhus fever and unsanitary conditions? At various times emergency calls from the Red Cross were promptly met.

"To the loyal devotion of the few faithful women directly affiliated with the Massachusetts Institute of Technology, who found it possible to make this Workroom their center of war service, the success and honor of the whole enterprise are due. To those other strong helpers, women who joined us through interest in or friendship for Technology, the thanks of Technology are given in heartiest measure.

"Moreover, in Buffalo, a group of ladies whose husbands were Technology alumni formed 'The Western New York Branch' of the War Service Auxiliary and sent to the Workroom at different times nearly six hundred articles and a contribution of money for kit-bags. Such co-operation from beyond our immediate borders was most welcome and encouraging.

"In May, 1919, the formal closing of the Workroom took place, with an address by Mr. Van Rensselaer Lansingh, '98, and a general exhibition of models of all garments made and supplies offered for distribution.

PARIS BUREAU

"Because the end of the fighting came unexpectedly soon a large and valuable amount of unmade material remained unused at this time, and a small group of the most devoted women offered to continue to cut and sew once a week during the summer whenever they were in Boston. This was paid for by unrestricted funds in the hands of the Treasurer and was sent through our usual channels for civilian and refugee relief. Even so when the autumn came there was plenty that could be made into useful garments. The Assistant Director and the Treasurer made inquiries of the refugee organizations of France, Italy and Serbia and ascertained that unmade material to be sent overseas to workrooms where the women of these countries were seeking employment would be quite as welcome as garments made in America. As a result the Committee voted to sell privately all that it could and to distribute the remainder to the relief organizations of these three countries. On December 1, 1919, there remained in the treasury \$1,700, of which the Committee has voted to give \$1,600 to the American Memorial Hospital in Rheims. By adding four hundred dollars more to this sum the war workroom of Massachusetts Institute Technology will be considered to have installed in that hospital the room designated for all purposes of disinfection with the required apparatus and will then be entitled to a brass tablet on its walls stating this to be the gift of Technology's war workroom. Thus there will be in France a permanent though modest memorial of our enterprise, while in our hearts and minds there will always linger a happy memory of days spent together trying to do a small part in the great world struggle."

PARIS BUREAU

It would appear that the idea of establishing a bureau to look after the interests of college men abroad originated with Doctor Anson Phelps Stokes, Secretary of Yale University, and at his suggestion Professor George H. Nettleton, head of the Department of English at Sheffield Scientific School, Yale University, was appointed to look after Yale interests in France. A brief account of the scheme published in the New York and Boston papers came to the eye of Mrs. Cunningham, who saw in it an opportunity for further service and immediately offered to furnish five thousand dollars to provide the Institute with a similar bureau. This occurred on June 11, 1917. Doctor Maclaurin placed the matter in the hands of Mr. Munroe, Secretary of the Corporation and Treasurer of the Committee on the Mobilization of Technology's Resources. A conference was held on June 13 at which Van Rensselaer Lansingh, '98, was suggested as the most suitable alumnus to take charge of such a bureau, provided he could arrange to leave his work in connection with the Council of National Defense. Mr. Munroe accordingly went at once to Washington, where in company with Mr. Litchfield he interviewed Mr. Lansingh, who consented to undertake the mission, and arrangements were made by which he was to take up work for the Council of National Defense dealing with certain processes used abroad. On June 18 Mr. Lansingh attended a dinner in Boston at which Mrs. Cunningham, Mrs. Frederick T. Lord, Mr. Hart, Mr. Humphreys, Mr. Munroe, Professor Pearson and others were present and at which final details were discussed.

The succeeding days witnessed great activity, for the Tech Ambulance Unit (see page 85) was scheduled to sail on June 23, and it was decided that Mr. Lansingh should accompany it.

It was felt that the Institute should not act independently in this matter, but rather that all American colleges interested should combine their efforts in such a way as to form what would amount to an American University Club in Paris. With this end in view, while final arrangements were being completed for the farewell of the Ambulance Unit and Mr. Lansingh, Professor Pearson by long-distance telephone succeeded in arranging a meeting between Mr. Lansingh and the representatives of Columbia, Princeton and Harvard. It developed that the representatives of the various colleges were practically unanimous in support of co-operative effort, and consequently this meeting may be said to have been the beginning of the American University Union in Europe—a movement which has since been rated by some French authorities as ranking in importance with the American Red Cross and the Young Men's Christian Association.

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LOUNGING ROOM OF THE AMERICAN UNIVERSITY UNION IN PARIS

On the evening of June 22 a banquet (see page 17) was held in New York and the last good-byes were said. Professor Nettleton of Yale, who had not been able to be present at the meeting of college representatives, arrived in time to address the assembled Tech men and to arrange the necessary details for co-operation in accordance with which Mr. Lansingh was to go abroad at once and open the Technology Bureau, while Professor Nettleton remained to organize and develop the idea among other colleges.

Lansingh arrived in Paris on July 5 and at once set about organizing the Technology Club which was to become the basis for the University Union.

A well-furnished, seven-room apartment at 7 Rue Anatole-de-la-Forge, not far from the Arc de Triomphe, was rented and supplied with such comforts as could be obtained. There were tennis courts in the rear of the apartment and a stock of balls, shoes and racquets was provided. Other games, such as chess and checkers, were purchased and finally a Pathé phonograph was obtained, although it was found that American records were not to be had. The apartment provided sleeping accommodations for five men beside the director. Before leaving the United States Mr. Lansingh had arranged for subscriptions to the most popular American magazines, and upon arrival in Paris subscriptions were also placed for the *London Illustrated News*, *L'Illustration* and similar periodicals. To complete the equipment he obtained a supply of pajamas, bed-slippers, and bath robes, for the use of men arriving from the front with nothing but their standard equipment or less.

As soon as the little center had been established further measures were put in effect. The first of these was that of serving hot tea to visitors. Difficulties were encountered, for at this time sugar could be obtained in France only by ration card. The ration permitted was one and one-half pounds of sugar per person a month. This ration was quite sufficient for one person but guests arriving at the Union for a brief visit were not entitled

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to a ration. This matter, however, was taken up with the American Embassy and special arrangements were made.

Another scheme early put into practice was that of issuing a weekly bulletin giving an account of what was going on at the Union. Copies of these bulletins were posted in the Club, while others were sent to members of the Committee for National Service at home and to *The War-Time Tech* and to all Tech men in France whose addresses were known.

On August 3 Professor Nettleton of Yale, Dr. Paul Van Dyke of Princeton and Mr. E. J. Wendell of Harvard arrived. Work was immediately started towards organizing the American University Union. Doctor Nettleton was elected director of the Union, and Mr. Lansingh assistant director and business manager, and a search for suitable quarters commenced. In the meanwhile the representatives of the various universities were the guests of the Technology Club at the Rue Anatole, which thus became the center of the American university life in Paris.

The establishment of the Union was by no means an easy matter. Quarters of considerable size were necessary and it was therefore deemed advisable to procure a hotel as a domicile. To maintain such a place was difficult, particularly in the matter of heating. Anthracite coal, when it could be obtained, was selling at seventy-five dollars a ton. Moreover the governmental regulations forbade the heating of any hotel or other public building above a temperature of about fifty degrees Fahrenheit. It was also forbidden to use heat for the purpose of baths except on two nights a week, and in order that no one should indulge in this luxury too often the two nights specified were Saturdays and Sundays.

Finally the difficulties were surmounted and the Hotel d'Iena was selected. Before actually establishing the Union there, however, the Technology Club occupied the building for a month by way of experiment. The location proved unsatisfactory as it was too inaccessible, and a new search had to be undertaken which ultimately resulted in the selection of the Royal Palace Hotel located at the foot of the Rue de Richelieu, facing the Place du Théâtre Français near the Louvre.

With the opening of the Union the Technology Club of Paris became the Technology Bureau of the American University Union, as announced by *Bulletin No. 5* of the Technology Club. Six other colleges besides the Institute maintained bureaus at the Union; namely, Harvard, Yale, Princeton, Michigan, Columbia and Virginia, while Cornell was also represented. In the new quarters of the Union at the Royal Palace a suite of three pleasant rooms was allotted to Tech, one of which became an office, one a salon—a general lounging room—and the third the director's bedroom. While the general public rooms of the Union were, of course, open to Tech men, the possession of a certain suite of rooms which they could call their own produced a sense of "homeiness" which could not have been otherwise afforded.

Lansingh's duties as assistant director of the Union, as well as his other duties in connection with the Council of National Defense, absorbed much of his time, but luckily he was able to obtain the aid of F. B. Smith, '18, and later that of Robert M. Allen, '16, who proved a most able assistant. Both had been members of the Tech Ambulance Unit, and on arrival had been placed in the American Field Service as camion drivers. Some of the men objected to the change on the ground that they had enlisted only for ambulance work. Smith was one of these. He was accordingly discharged and took up work in the purchasing department of the Young Men's Christian Association at Paris, which enabled him to give a certain amount of time in aiding Mr. Lansingh at the original Technology Club on Rue Anatole. Smith later received a commission as first lieutenant in the Sanitary Corps, and was assigned to the medical purchasing office in Paris. Allen, on the other hand, had remained with the unit until the camion service was taken over by the United States Government. When this action was taken it was necessary for all men of the Field Service to undergo the usual physical examination before being regularly enlisted in the American Army, and Allen, because of some trivial defect, was refused. He immediately took measures toward entering the French service but there were certain formalities to be gone through, and in the meanwhile he offered his services to Mr. Lansingh at the Bureau. For some months thereafter he was largely

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responsible for making it an agreeable home port for Tech men drifting about during the early days of the American campaign.

Life in Paris at this time was not without excitement nor was this provided entirely by the gay boulevards. While the terrible aerial attacks which marked the opening of the spring campaign of 1918 had not yet begun in earnest, the enemy were already commencing to attack the French capital with the idea of breaking down the morale of the people and rendering the next spring's drive more effective. One of these raids was described in a letter written to *The Tech* by Mr. Lansingh dated August 15, 1917.

"About ten-thirty I was awakened by the noise of sirens, and Smith and I rushed out on our balcony to see what was the matter. We are on the top (seventh) floor and commanded a fine view of the sky to the north, from which direction the attack came. Also we were where any stray bombs could alight and find us at home.

"The sky was alight with airplanes but whether or not they were friends or foes we did not know at the time. They were darting to and fro like giant fireflies. They were equipped with a powerful searchlight and a green and red light on their wings. When the searchlights were turned in our direction they looked like flaming meteors, but when turned away they could not be distinguished from the stars, which were shining brightly, except by their movement. When they sailed overhead at an altitude of from three thousand to five thousand feet the red and green lights showed clearly while the drone of the motors sounded like a hive of bees.

"Off in the distance we could see the bombs shot by the defenses of Paris. They rose in a parabolic curve and would suddenly go out just before they reached their maximum height. The searchlights from numerous points were trying to locate the raiders. In the meanwhile the police wagons drove furiously up and down the streets, ringing their gongs and blowing their sirens as a warning and order for 'all lights out,' which everybody proceeded to obey. The street lights were all out and Paris was dark save for the lights from the stars."

By the middle of November the University Union was well established and the Technology Bureau had become a center of great activity. Numbers of Tech men were always in Paris and the Union became a popular rendezvous. The Bureau was at this time not only providing a general meeting place but was carrying on a great number of other services. For example, where men found themselves assigned to work for which they were unsuited, it brought them in touch with the proper authorities to facilitate transfer. It kept accurate files of the addresses of all Tech men abroad, forwarding mail and packages to them, distributing *The Tech* and the Technology Bureau *Bulletins*, and seeing that all Tech men knew how to reach the Bureau when in Paris. It did errands for men in the field, such as having pictures developed and printed, having eye-glasses mended, sending cables and, under certain conditions, lending temporary financial assistance. One of the most important duties of the Bureau was perhaps that of writing to parents of men who visited the Bureau, telling them that their sons had called and reassuring them as to their health and safety.

The Bureau also provided a sort of advance station from which relief work of various kinds could be carried on in an emergency. Thus when the "Tuscania" was torpedoed Mrs. Cunningham immediately cabled Mr. Lansingh, as well as Major Edgar H. Wells, Deputy Commissioner of the American Red Cross in London, and the Red Cross at Belfast, guaranteeing financial assistance for any Technology men who might be in serious straits due to the loss of their property on board the ship. As a matter of fact Lieutenant Leland V. Clark, '15, was the only Tech man aboard, and it does not appear that he required any assistance, but the advantage of having such an agency ready in such an emergency is self-evident.

Another most important activity of the Bureau was the distribution of the various goods sent over in the gift trunks from the Workroom of the Massachusetts Institute of Technology War Service Auxiliary. These trunks contained sweaters, wristlets, helmets, socks, and other useful garments; also, all sorts of other supplies, such as shaving mirrors, shaving cream, shaving brushes, candy and chocolate. The trunks were brought across as part of the baggage of various individuals and sent to the Bureau, where they were unpacked and the contents went to form part of a supply which later, under Mr. Gibbs, became known as the "Treasure Chest." Whenever Tech men came to the Bureau they were given their choice of material, and it was interesting to see how often they refused things which they would have liked very much to have had, saying, "No, I can get along without that. Save it for some fellow who really needs it." Notices were placed in the *Bulletins* so that men who were unable to visit the Bureau had opportunity to draw on

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the "Treasure Chest" by mail or messenger. When, as occasionally happened, the supply of any articles was greater than the demand among Tech men, the things were given to men of other colleges; or, in certain cases, to hospitals, to devastated areas, and to various relief organizations. The Institute was the only college which looked after its men in this manner. Mr. Lansingh estimates that in the first five trunks brought over the articles distributed amounted in value to over five thousand dollars. Needless to say they contributed immensely to the comfort of the recipients.

It was not altogether an easy matter to arrange for the shipments of these trunks, for importations into France were confined to the barest necessities, and baggage which could be brought or shipped in by any one person was very strictly limited. As a result of these regulations some rather amusing difficulties were encountered. Thus one box containing, together with sweaters, socks, and other articles of clothing, a certain amount of material for playing games, was held up because the customs officials objected to a pair of dice which were not considered as necessities. It cannot be discovered whether it was finally decided that a set of dice was a necessity for the existence of Tech men or whether they took up tonnage which should have been used for pig iron, but in any case the box ultimately reached its destination.

In the meantime, the work of the American University Union in Europe was being extended and offices were being founded in London and in Rome. Professor Nettleton and Mr. Lansingh appear to have had general supervision of the establishment of these bureaus, and Gorham P. Stevens, '98, Director of the American Academy in Rome, served on the advisory council of the bureau established at that place.

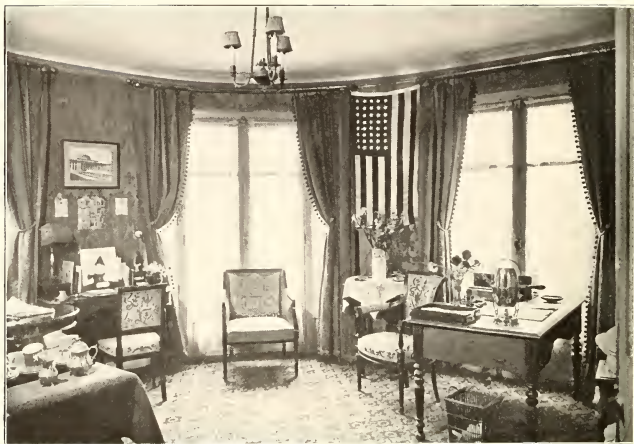
On November 7 the Tech men held the first college reunion dinner at the Union. This dinner proving a great success, arrangements were made by which a Technology dinner should be held the first Saturday evening of each month, and after each dinner there should be an illustrated lecture in English by some one recognized as an authority on various military matters which would be of interest to all.

With the exception of a short time during the spring of 1918, when all plans were interrupted by the German offensive, these dinners continued, a number of the speakers being Tech men, notably Professor Jackson and Professor Riley. The average attendance was about twenty-five. In March, 1919, however, the number of men attending the dinners became much larger and the place of dining was moved from the Union to the Restaurant Procope on Rue de l'Ancienne Comédie near the Boulevard St. Germain. This restaurant is one of the oldest in Paris. Opposite was located, before the French Revolution, the famous Théâtre Comédie Française. This restaurant was patronized by Rousseau, Voltaire, Robespierre and Danton, and tables still bear their names. Our own Benjamin Franklin was also well known there, and on his death his bust was set up and crowned with garlands.

On Thanksgiving Day, 1917, the entire Union held a dinner which was attended by one hundred and fourteen American college men. The dining room of the Royal Palace was crowded not only to capacity but to overflowing, for it was not supposed to seat more than a hundred. Everything possible was done to give the affair an American atmosphere, and it was difficult for the diners to realize that they were in Paris rather than in the United States. A real American Negro orchestra of five men provided entertainment with songs and clog dancing. One of the first stunts of the dinner was the singing of the "Stein Song," at which the fourteen Tech men present rose according to custom. Men from various other colleges, notably Harvard and Yale, replied with various songs and yells, but the Institute men outnumbered and, according to their own account at least, outyelled the members of any other college present. Needless to say the dinner was a tremendous success.

Nor was this the only form of Thanksgiving celebration. Quite a number of Tech men had obtained permission to visit Paris for the day but were unable to remain in the evening. These men Mr. Lansingh arranged to take to the American Club Dinner at noon, where they were able to see, and hear addresses by Marshal Joffre, General Pershing, Ambassador Sharp, René Viviani and André Tardieu.

During the winter Mr. Lansingh was able to give practically no time to the Technology Bureau proper, this work being left almost entirely in the hands of Mr. Allen.



INTERIOR OF THE TECHNOLOGY BUREAU AT THE AMERICAN UNIVERSITY UNION

Allen, however, had been busy making arrangements to enter the French service, and on February 20 he left the Union to enter the French Officer Candidates' School, from which he was graduated with the rank of aspirant and was commissioned in the French Field Artillery. Allen's military career was brilliant, for he served, first as an aspirant and later as sous-lieutenant in the 40^{ème} Régiment d'Artillerie on practically every active front from April, 1918, until the armistice, during which period his regiment received the médaille militaire "for the supreme courage displayed by its members." He took part in the actions along the Aisne, Chemin des Dames, Champagne, Ardennes and Champenoux, the Second Battle of the Marne and the Meuse-Argonne, for his services in which action he was decorated with the Croix de Guerre.

The resignation of Allen had been for some time foreseen and the Massachusetts Institute of Technology Committee for National Service had made arrangements for a successor. Howard L. Coburn, '87, better known as "Pa" Coburn had been suggested for the position since his enthusiasm for Technology and all things related to Technology, and his ability to meet and make friends with men, was well known to all. Mr. Coburn had undertaken the work and was about to depart for Paris when he was prevented from doing so on account of business in connection with government work.

The Reverend George C. Gibbs, '00, was selected to take his place. At the outbreak of war Gibbs had been rector of the Church of the Redeemer, Okmulgee, Okla. He had been offered a chaplaincy in an engineer regiment but was rejected by the Adjutant-General's Department on the ground that no more Episcopalian chaplains could be appointed at that time.

In November, 1917, Gibbs, having resigned his charge in the West, came to New York City as assistant rector at St. Anne's Church in the Bronx, and took out a resident membership in the Technology Club of New York where he met Coburn. When

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the latter had to give up his much-cherished plan he suggested Gibbs as his successor, and after a conference with the committee in Boston, he was appointed.

After a pleasant, calm and uneventful voyage Mr. Gibbs arrived at Bordeaux, France, on March 19, reaching Paris on the following day. Upon arrival he adopted a policy based upon the theory that while the work of the Union as a whole was to extend the influence of American universities in France, and to act as a general meeting place for American college men, the work of the Technology Bureau was to provide a real home for Tech men and by personal interest to bring them into close touch with the Bureau and with one another. With this end in view, he inaugurated numerous innovations, of which perhaps the most popular was the custom of serving coffee each afternoon.

It may be wondered how Mr. Gibbs managed to obtain the coffee, though a number of Tech men already know some of the details of his little scheme. This coffee was contributed to the War Service Auxiliary by Mr. S. Scheinfeldt, the uncle of Joseph A. Aaron, '11. It was carried overseas under the direction of Mrs. George in five-pound packages carried by various individuals whom she was able to persuade to aid her in the undertaking.

What a thoroughly cozy, homelike place Technology's Paris home was during this period can best be judged from the following letter written by a Tech man who had recently enjoyed its hospitality.

"One glance at the Tech Bureau makes you feel that you have struck the right place — no one will question that. The atmosphere is full of Tech cordiality and hospitality. Located in a corner room, the best location in the building, one looks out over the Place de la Comédie Française, the fountain and trees, and the Avenue de l'Opéra, while the dark gray walls of the Louvre are seen down a short cross street. The interior of the room is tastefully decorated with pictures of the Institute, an American flag, and small miscellaneous trifles. Flowers are continually kept in the room during the summer months, and it is surprising what a cheerful little touch they give and one that is appreciated and often spoken of by Tech men when they come in. A bulletin board near the door is placed so that it is seen by every one as he leaves. The latest clippings concerning Tech men and Tech affairs are placed there whenever they come in from the States. A file of *Techs* and some of the later 'Techniques' are kept on the table.

"The director, Mr. George C. Gibbs, is fast proving himself the ideal man for the place. His heartiness and the knack he has of making every Tech man that comes in a personal friend, is a rare quality and one that



"GEORGE"

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is appreciated by all. It is this personal touch which makes the Tech Bureau one of the strongest in the Union if not the strongest, for the fellows always come back whenever they are in town. Smokes are provided for the men and always without charge, while the 'Treasure Chest' which the Technology women are keeping up is open to any of the fellows in need of such things and to those in the field who are otherwise unable to obtain them. When one sees what is being done in the office by the director and his assistant, Miss Beakhurst, with the aid of a Boy Scout who comes in a couple of days a week, one cannot help but realize that Technology is behind him every minute. The readdressing of mail, countless errands and commissions for the fellows at the front, starting them on sightseeing trips around Paris, etc., are all in the day's work. Mr. Gibbs is in personal correspondence with a large percentage of the men that drop in, and his letters alone, as he has sometimes read extracts to me, would form an intensely interesting volume if it were not violating personal confidences, for every man at the front dislikes to see his name in print written up as a hero.

"Evenings are perhaps the pleasantest part of the day's work in the office, for there is always a group of Tech men, perhaps two, perhaps six, having a little chat, talking over old times or telling some of their humorous experiences in France. The coffee set which was sent over from the States plays an important part in these little meetings, for Mr. Gibbs always picks on some one to do the churning while he proceeds to light the alcohol lamp and start the brew. The yellow cups and saucers balanced on a khaki-covered knee do not look out of place."

In August, 1918, the Technology Bureau was enlarged in such a manner as to provide room for an extra bed and to give the director a little more privacy should he so desire; but one of the two beds in his room and a cot in the office were at the disposal of visitors, while his bathroom became one of the most popular institutions in Paris. Indeed a gentleman from one of the other bureaus remarked, "The Institute not only eats and sleeps them but also washes them"—a service which can be appreciated only by one who has been billeted for a few months in a small French country town.

When Mr. Lansingh originally agreed to go abroad to take charge of the Technology Bureau he undertook to remain in charge of this work for one year. The year was now nearly up, and as his work for the Council of National Defense was at this time about completed it was necessary for him to return to the United States. The American University Union in Europe was now well established and the Technology Bureau of the Union had become a running concern. Accordingly, early in June he resigned and shortly afterwards returned to the United States.

The dinner held on June 1 was the first Tech dinner for some months. It served both as a welcome to Mr. Gibbs, the new director, and as a farewell to Mr. Lansingh. Mr. George Mower, '81, acted as chairman and Professor J. Erskine of Columbia University, who was at that time chairman of the Educational Campaign of the Young Men's Christian Association, was the speaker of the evening. At the close of the dinner, a handsome "Cave Liqueur" consisting of a crystal liqueur set of the Empire period, enclosed in a fine mahogany case, was presented to Mr. Lansingh by the Tech men present.

The interruption of the dinners during the spring of 1918 had been due to the exigencies of the great German offensive. The period was indeed an eventful one for Paris. Air raids occurred almost every night while the shells of the famous long-range "Bertha" from time to time served to rack the nerves of the inhabitants. It will be recollected that one of these shells struck just north of the Madeleine, while another, on Good Friday morning, struck the church of St. Gervaise, and it will be found on examining the maps of Paris that the University Union was almost between these two and nearly in line with them.

Toward the end of June the work of the Union took on a different aspect. To be sure the same men gathered at the Union, the monthly dinners were continued as usual, but the correspondence of the Bureau shows that another influence was at work. American forces, including some eleven hundred Tech men, had finally become seriously engaged with the enemy. Streams of wounded came pouring into the hospital centers from day to day and the casualty lists showed the names of Tech men killed or missing. Mr. Gibbs was appointed to assist Doctor Van Dyke of the Union in looking after the wounded, and was requested by the American Red Cross to add to his other duties that of visiting the American Red Cross hospitals in Paris. Two afternoons a week he visited Base Hospital No. 1 at Neuilly, and every Sunday morning at eight o'clock he administered the sacrament of Holy Communion, according to the custom of the Episcopal Church, to those of the sick and wounded who so desired. Toward the close of June the wards of the hospitals were filled with American wounded to whom he in his letters pays a lasting tribute for their spirit and cheerfulness.

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Not only did the work in the hospitals consist of carrying comforts to those who lay wounded, but it included seeing to their welfare after discharge. Most of the men at the time they became casualties had the barest field equipment upon them; in many cases even their uniforms had been cut away in order that their wounds might be reached at the field dressing stations. In most cases their property had been completely lost, and many of them were wholly destitute. For the relief of such men an emergency fund was gathered originally consisting of two thousand dollars, one thousand of which represented the proceeds of the Tech Show of 1918, while the other was a contribution of Charles W. Eaton, '85.

The fund was to be used by the director to aid Tech soldiers and officers who were wounded or ill or in other need, and also to assist men who, on receiving their commissions as second lieutenants, had immediate need of money for equipment. Until the armistice the director applied these funds wherever he heard of a wounded or a sick man in a hospital, the funds being given out as long-time loans. Even after the armistice a few men were found in hospitals to whom assistance was given.

The fund was also used for loans to men who wrote for them or came personally. The privilege was never abused and was of great relief to many. No questions were asked, no strings were tied to the loan, the man simply put the date and his name under an "I. O. U." to the emergency fund. He always paid back the loan, and usually without any request to do so.

In addition to his contribution to the fund, Mr. Eaton himself on many occasions made loans greater or less in amount to men temporarily in need of cash. It is said of Mr. Eaton that he would never permit a man to give his name. "If you return the money, as I believe you will, I shall not need to know your name; if you do not return the money, I do not want to know your name."

Later after the advance to the Vesle, the number of wounded decreased somewhat. As it diminished work of another nature began to assume importance. Anxious relatives began to inquire as to Tech men reported killed, wounded or missing, and also as to the location of the graves of those who had fallen. This work was not completed until July, 1919, when the fate of the last Tech man was finally decided.

Toward the end of the summer the continued victories of the allied forces brought about a somewhat gayer atmosphere. The number of Tech men in Paris was also increasing rapidly, for though Paris leaves were still denied, it was possible to spend several hours in the city while travelling between any two points in France. As a result quite a number of Tech men were present in Paris on the day of the armistice; all of these were the guests of Mr. Eaton for luncheon and dinner and took part in the general rejoicing which filled the city on the evening of November 11.

Soon after the armistice Paris leaves were permitted, and from this time on the University Union was always crowded to its capacity and the extra beds in the Tech Bureau were in constant use.

On December 5 at the regular monthly dinner twenty-six men were present and each received an attractive brass cigarette lighter as a souvenir. These lighters were the gifts of Mr. Eaton. On December 21 the Tech men held a Christmas party. At five P.M. there was held an informal open house with real eggnog, while at seven there was an old-fashioned Christmas dinner, after which the "Treasure Chest" was opened and gifts were given out to every one present. Nor were the other Tech men, who on Christmas Day enjoyed "canned Willie" and moldy bread in their billets amid the ruins of the zone of advance or on the march in Germany, forgotten, for one of Mr. Eaton's cigarette lighters was sent out as a Christmas remembrance to every Tech man whose address was on file at the Bureau — seven hundred in all.

Throughout the spring visitors continued to come and go. From March until June, under the provisions of the United States Army, men were placed in various universities in France and England for study. A large number of these were Tech men, and a very considerable number were located in Paris, at the Sorbonne, École Polytechnique, École des Ponts et Chaussées and at the art training center at Bellevue. Many of our men were instructors at the American Expeditionary Force University at Beaune. Each day

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after afternoon coffee the men would break up into groups and go off to dinner or make up a theatre party for the evening.

Visitors from home were frequent, and in the register of this date we find the names of A. F. Bemis, '93, George F. Swain, '77, Charles T. Main, '76, George L. Gilmore, '90, and many others well known to every Tech man.

As the spring of 1919 wore on changes took place. The popularity of the Bureau was such that it was necessary to make further enlargements, and in March Mr. Gibbs obtained a most efficient assistant in the person of David A. Reed, Jr., '18. Reed had been one of the original Technology Ambulance Unit, who had entered the United States Army at the time when the American Field Service was taken over by it and had remained in the Motor Transport Corps ever since. He had served in the famous "Reserve Mallet" and attained the rank of sergeant. In March Sergeant Reed's unit was demobilized at St. Aignon, and shortly after receiving his discharge Reed went to the Bureau to assist Mr. Gibbs.

In the meanwhile the stream of troops was steadily flowing from France back to the United States and with it were going the American college men. On July 1, 1919, the American University Union in Paris closed, relinquishing its contract with the Royal Palace and retaining only its offices. The Technology Bureau, however, did not close until the first of August, utilizing in the meantime the rooms which had previously been those of the Yale Bureau. The Bureau had now ceased to be merely a bureau of the American University Union; it was once more, as it had been in its early days, a Technology Club in Paris. The new rooms were fitted up as a little dormitory, with beds for the Director and Assistant Director and for visitors, while meals were served in the apartment — a custom which had been prohibited in the by-laws of the Union.

When the Bureau closed the Tech men in Paris were not left entirely without a home, for the last act of the Director was to insure that some permanent organization would be left to carry on the work of the Bureau as long as Tech men remained abroad. On July 31 he gathered together all Tech men who were in Paris more or less permanently and organized the Technology Club of Paris. Edward Stuart, '10, was elected secretary. His headquarters were located at the office of the Rockefeller Foundation and for some months to come he continued to keep a mailing list of all men in France and to communicate Technology news to them. Luncheons were planned at regular intervals in Paris and it is hoped that from this organization a permanent Technology Club of France may result.

As a matter of fact a permanent organization has been established, for the American University Union in Europe has been placed upon a permanent basis and is now making arrangements to build a "Maison des Etudiants" in the heart of Paris, which is to perpetuate in appropriate form of memorial the story of the service of American college men during the war. This work will be supported by fifty universities, colleges, and technical schools throughout the United States, and naturally Technology is among the number.

Throughout the time of its existence the Bureau had been a model and it aroused the envy of every university organization on the ground. Its success may be attributed to two factors — the promptitude and the extent to which funds were made available and the personnel in charge.

The original funds, as has been seen, were contributed by Mrs. Cunningham, and it is to her generosity that Technology owes the fact that it was the first college to be represented in Paris. It would have been difficult, however, for the work to have been carried on without further support, and this, as we have seen, was provided through the war fund gathered by Doctor Tyler's finance committee of the Massachusetts Institute of Technology Committee for National Service. The amount of money on hand was always adequate and was so well handled as to appear generous in the extreme. In addition to the sources already recorded many of our men serving abroad desired to contribute to the funds of the Bureau. In most cases contributions from members of the American Expeditionary Forces were refused, but many of these men's relations sent heavy contributions in recognition of little kindnesses done to their sons and brothers; while a large number of persons sent money to the director to be used by him in aiding individuals in

THE TECHNOLOGY AMBULANCE UNIT

emergencies or in providing funds which would permit enlisted men to enjoy to the fullest their furloughs in Paris.

The other factor in the success of the Bureau was the personnel. The entire object of the Bureau was to provide a home. Its entire success depended on whether or not it would be homelike. It was Mr. Lansingh who grasped this fact and saw to it that the Technology Club and later the Technology Bureau was in fact the home of the Tech men in France. It was he who, when he was obliged to give up direct supervision of the work, insisted that the new director should be a man who would insure the continuance of a homelike atmosphere. Such a man was George Gibbs. Not only have hundreds testified in their letters from abroad to the love of Tech men for him, but many, fearing that adequate justice would not be done to his work, in sending in their war records neglected to put down any details of their own service but instead sent in notes requesting that the work of George Gibbs be given precedence over that of all other Tech men in France. He was a mature man, yet sympathetic with youth; he was a man who understood how to use money and equipment efficiently, yet without allowing this efficiency to show in machinelike methods or in apparent stinginess. Upon the contrary he so managed the funds at his disposal as to give those who visited the Bureau the impression of bounty and generosity. Above all he was a friend. Upon reaching Paris he set about learning French and became very proficient in its use. He learned the city, its points of interest, its shops, its restaurants and its places of amusement. At first his knowledge merely was in demand, but soon it was he himself. Men were no longer willing to simply go and visit places which George Gibbs suggested; they desired "George" to go too, and he soon became their source of information, their counselor, their friend and companion. He has himself said of his work at this time that it was the "best and happiest" he has ever done. There are few men in the world today who can boast of as many fast friends.

The Technology Bureau of the American University Union, to quote the battle-cry of the famous American division, was "the first to fight and the last to quit." It took a most prominent part in the foundation of the American University Union. Important as this achievement was, however, it would scarcely justify the existence of such an institution as the Technology Bureau as a wartime measure. Considered from the point of view of war, such an institution could serve the Nation in only one way, namely, that of maintaining and improving the morale of the fighting men at the front. Morale is a somewhat complex phenomenon and is influenced by many factors, but of all these factors there are none so potent as the feeling on the part of the individual that he is fighting for his home and his fireside, for the land so far away across the seas. No force could possibly be so effective in keeping up the morale as one which provided for each individual a home, and the success or failure of the Technology Bureau must be judged from this point of view. How successful it was can be judged only by the hundreds of letters and testimonials received from men who visited it. It was a home; it brought memories of home; and it provided, through its bulletins and correspondence, actual, tangible contact with home. Its success, as we have seen, is due first to Mrs. Cunningham, for the inception of the idea and for the initial contribution of funds; to Mr. Lansingh, for laying out the Bureau and developing it into a running concern; to the Finance Committee of the Alumni Association and to those Tech men and friends of Technology who contributed to its upkeep; but, above all, to the ability, tact, and sympathy of George C. Gibbs.

THE TECHNOLOGY AMBULANCE UNIT

Almost from the outbreak of war a number of Tech men were serving with the American Ambulance Service in France. One of them, Enos W. Curtin, '17, felt that the Institute should be represented not only by individuals, but also by a Technology ambulance unit similar to those maintained by other colleges. He therefore arranged for a meeting at the Technology Club of New York, which was addressed by one of the members of the service. A subscription was taken up to equip a Technology unit, and a bulletin was issued requesting donations to complete the amount.

This bulletin came to the notice of Mrs. Edward Cunningham, who offered to

TECHNOLOGY'S WAR RECORD

contribute whatever might be necessary as a memorial to her husband. The amount proved comparatively small, and Mrs. Cunningham did not feel that it was really a sufficient gift; she accordingly made arrangements, through Doctor Maclaurin, by which a complete ambulance was presented to the American Ambulance Service. This machine, Ambulance No. 754, which bore the inscription — "Given in memory of Edward Cunningham, M. I. T. 1891," was sent to France and for many months performed valuable service as a unit of Section 29.

On December 13, 1916, Leslie Buswell, an ambulance driver recently returned from France, gave an illustrated talk at the Institute entitled "Ambulance No. 10," at the close of which he called for volunteers to join the Ambulance Service. Literature was also left in the office of the Technology Christian Association, and before long a number of undergraduates had become interested in the formation of a Technology unit.



TECH AMBULANCE UNIT ABOUT TO GO TO THE FRONT

The formation of such a unit was contrary to the Institute's policy as laid down by Doctor Maclaurin, and the organizers appear to have received little encouragement, official or otherwise. Nevertheless men continued to enroll until the roster contained the twenty names required. Early in June a second meeting was held, at which Irving G. Hall, Jr., '18, was chosen head, and plans were laid for assembling the unit at New York.

The arrangements for establishing the Technology Club of Paris (see page 75) and the American University Union in Europe (see page 75) were just coming to a head, and many prominent Tech men were gathered in New York. On the evening of June 22 a farewell banquet was held, and among the distinguished guests and speakers were: Maurice R. Scharff, '09, head of the Washington Technology Bureau; James P. Munroe, '82, Van Rensselaer Lansingh, '08, Professor Nettleton, head of the English Department of the Sheffield Scientific School; I. W. Litchfield, '85, Professor H. G. Pearson, Louis Tracy, the novelist, and Mrs. Edward Cunningham.

A day or two later the men sailed on the "Rochambeau." The roster at departure read as follows: H. B. Allen, '18, R. M. Allen, '16, F. N. Breed, '12, L. B. Cahill, '19, K. H. Day, '17, Dinsmore Ely, '18, E. P. Griesemer, '20, I. G. Hall, Jr., '18, R. J. Henderson,

THE TECHNOLOGY AMBULANCE UNIT

'19, F. W. Holmes, '16, F. L. Kline, '18, J. R. Milliken, '20, D. A. Reed, Jr., '18, G. W. Root, '19, F. B. Smith, Jr., '17, D. G. Tarpley, '17, together with four men from another institution who had joined them on board the ship. E. N. Winslow, '18, followed on the next steamer and joined the unit in France.

On arrival in Paris it was found that ambulance drivers were no longer in demand; on the contrary drivers for trucks were very urgently needed; and that the American Field Service had been reorganized, with the intention of supplying this need rather than ambulance personnel. Smith and Ely objected to this change and resigned. Of Smith's record we have already spoken (see page 77) and of Ely more will be said later (see page 162, also Roll of Honor). The remainder of the unit was now sent to a school for American camion drivers at Longpont and at the expiration of two weeks' training went to the front. Being too small to form a single company they served as replacements for the various companies of Section 526 of the famous Reserve Mallet. Although somewhat separated the men still saw one another frequently until October, 1917, when the Reserve Mallet was taken over by the American Army; the American Field Service was at this time disbanded.

The members were given opportunity to enlist in any branch of the service of the United States Army, and as a result the Technology Unit, as such, was completely broken up. Of the original group six became members of the Motor Transport Corps, five entered the Air Service, one the Sanitary Corps, three the Engineer Corps, one the Tank Corps, one the French Artillery, one the Ordnance Corps, and one the United States Navy. Of one man we have no record.

During the period of active service between July 22 and the first of October, Section 526 was engaged in carrying munitions up to the Aisne sector, and hence its members can claim to have taken part in the offensives against Crayonelle and Fort Malmaison.

CHAPTER III

TECHNOLOGY'S ROLL OF HONOR

RAYMOND VAN EETVELDE.

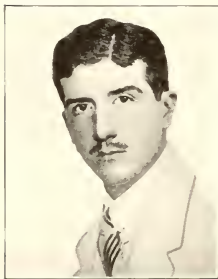
Belgian Army.

Attended the University of Louvain.

Entered the Institute in April, 1906, and attended until 1908.

Studied in the Course in Mechanical Engineering. He was the son of Baron van Eetvelde of Brussels, Belgium. While at the Institute he became greatly interested in canoeing.

Shortly after the outbreak of war he enlisted as a member of the Canadian Expeditionary Forces, but later transferred to the Belgian service. There is little further information regarding him except that he continued in service until August 15, 1918, when he died in the Military Hospital at LeParne as a result of influenza contracted in the trenches.



PAUL GAUTIER VIGNAL.

Captain, Chasseurs Alpins, French Army.

Born in Nice, France, March 7, 1887.

Graduated from the Polytechnic Institute, Zurich, Switzerland.

Entered the Institute in February, 1912, and attended until June, 1914.

Studied in the Course in Mechanical Engineering.

Member of the Cercle Français.

In June, 1914, he left the United States to take up work in China. As he was a reserve officer of the French army, he was called home immediately upon the outbreak of war, as a captain in the Chasseurs Alpins. His unit was sent into the Ypres sector and he there took part in several local attacks, and while personally leading his men he was killed, in December, 1914. He was the first Technology man to lose his life in the war.



KENNETH WEEKS.

Private, Foreign Legion, French Army.

Born at Chestnut Hill, Mass., December 30, 1889.

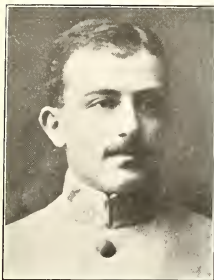
Entered the Institute in 1908 and attended until 1910.

Studied in the Course in Architecture.

Member of Delta Kappa Epsilon fraternity, standing committee of the Architectural Society.

In 1910 he went to Paris to study at the Beaux-Arts and at the outbreak of the war had already published a number of plays and essays. He volunteered the first week of the war, was enlisted and assigned to the First Regiment of the Foreign Legion, with which he saw service in the most critical engagements during the spring of 1915. He was cited for distinguished gallantry on May 9, 1915, at the taking of La Targette and Neuville-St. Vaast, and received the Croix de Guerre. Shortly afterwards he volunteered for work as a bomb-thrower and on the sixteenth and seventeenth of June took part in the storming of Hill 119, just north of "The Labyrinth." Weeks was last seen near the German third-line trench in the act of throwing a bomb.

TECHNOLOGY'S ROLL OF HONOR



HENRY LAMY.

Sergeant, Infantry of the Line, French Army.

Born in Normandy, France, in 1891.

Received his bachelor's degree at the University of Paris.

Entered the Institute in 1910.

Graduated in the Course in Mining Engineering in 1913.

Member of the Cosmopolitan and Walker Clubs, Mining Engineering Society.

On returning to France he entered the army to receive the customary two years' training, and at the outbreak of hostilities was a member of the 132d Infantry regiment. He took part in the fighting about Charleroi, in August, 1914, and in the First Battle of the Marne. At the Aisne he was wounded by shrapnel and after one month in the hospital entered a munitions factory. Two months later he volunteered for the front and served with distinction during the summer of 1915, being recommended for commission as sous-lieutenant and receiving the Croix de Guerre for gallantry. During the Champagne drive of September, 1915, he was mortally wounded while leading his men. He was the first Institute graduate killed in the war.



HARRY CAVANAGH.

Lieutenant, Canadian Engineers.

Born in New Glasgow, N. S., February 5, 1886.

Prepared at New Glasgow public schools and Dalhousie University.

Entered the Institute in 1911 and attended until 1912.

Studied in the Course in Civil Engineering.

After leaving the Institute he became assistant engineer on construction of Eastern Car Works.

He enlisted in December, 1914, in Ottawa, as a sapper in the Signal Corps of the Canadian Engineers. He was commissioned a lieutenant at the Engineers' Training Depot, at Ottawa. He was sent overseas in 1915 and for some time was in charge of the engineer depot at the rail head near Ypres. In July, 1916, with his company, he was sent to help the Australians build roads and water supply on the Somme. He took part in the operations at High Wood and Contalmaison. He was mortally wounded by a shell at Pozieres, August 23, 1916, and died in London ten days later.



THOMAS ATKINSON TILLARD.

Captain, Royal Flying Corps.

Born at Baltimore, Md., February 25, 1884.

Prepared at Eton and attended Trinity and Kings College, Cambridge, England. A. B. Cambridge University.

Entered the Institute in 1906.

Studied in the Course in Civil Engineering.

Member of Chi Phi fraternity, president of the Golf Club, president of the British Empire Association.

In October, 1914, he entered the Norfolk Yeomanry, but in December, 1915, he entered the Royal Flying Corps. He was promoted to the rank of captain, Royal Flying Corps, and went to France, where he served with great credit. On the afternoon of December 6, 1916, he was testing a Morane "Parasol" monoplane at a height of about five thousand feet. The machine suddenly fell into a nose dive and crashed. Captain Tillard was instantly killed.

TECHNOLOGY'S WAR RECORD



HENRY FRANCIS LEWIS.

Lieutenant, Canadian Infantry.

Born in Chicago, Ill., July 10, 1884.

Prepared at the Chicago Manual Training School.

Entered the Institute in 1901.

Graduated in the Course in Physics in 1905.

Member of Delta Tau Delta.

In January, 1916, he enlisted in the British army and went overseas in September of the same year. In November he married Miss Kathleen Baker. He served in the trenches from December, 1916, to April, 1917, and took part in the battle of Vimy Ridge. When his battalion — the 44th Canadian — reached its first objective Lieutenant Lewis and another officer endeavored to get in touch with the battalion to the right. They were wounded and taken prisoners. Lieutenant Lewis died the same day at a Bavarian field hospital, April 12, 1917.



HARRY ALEXANDER ROBERTSON.

Lieutenant, Canadian Infantry.

Born on September 7, 1888.

Attended McGill University, Montreal, Canada.

Entered the Institute in 1910 and attended one year.

Studied in the Course in Chemistry.

In January, 1915, he enlisted as a private in Princess Patricia's Canadian Light Infantry and served overseas with that regiment from February, 1915, to July, 1916. He then returned to England where, having successfully completed a course of instruction, he was commissioned lieutenant and assigned to the 44th Canadian battalion. He was killed in action on May 11, 1917, while leading a counter-attack to regain ground temporarily won by the enemy near Avion.



BRAXTON BIGELOW.

Captain, Royal Engineers.

Born on January 17, 1887.

Prepared at Morrystown and later attended Harvard University.

Entered the Institute in 1907.

Graduated in the Course in Mining Engineering in 1910.

Member of Delta Psi fraternity, Round Table Club.

He was engaged as a mining engineer in the silver mines of Morochocha, Peru, but left this position to enlist in the American Field Ambulance Service. He was sent to Serbia, where he was decorated, and in April, 1916, he returned to England to receive a commission in the Royal Artillery. He was transferred to the Royal Engineers and was promoted to captain. In August he was slightly wounded but returned to France and was assigned to the Lens sector. In May, 1917, he was recommended for gallantry and distinguished service. On July 23 he took part in a raid on the "Hairpin," and after capturing a prisoner he descended a hostile mine shaft. He never returned.

TECHNOLOGY'S ROLL OF HONOR



ERIC WIER MASON.

Lieutenant, South African Artillery.

Born at Pietermaritzburg, Natal, in 1891.

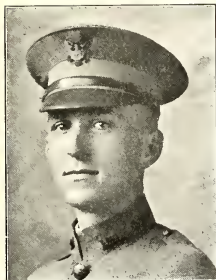
Prepared at Rugby, England.

Entered the Institute in 1910.

Graduated in the Course in Mining Engineering in 1914.

Member of Delta Kappa Epsilon fraternity, chorus of Tech Show, chairman British Empire Section of the Cosmopolitan Club, Executive Committee of class.

He enlisted in the Imperial Light Horse and saw service in German Southwest Africa. He was later commissioned in the South African Heavy Artillery, and in April, 1916, he accompanied his unit to France. His leg was broken by a runaway gun-team, and he was invalided to England. While there he married Miss Sheila Grant of Cape Town. He returned to France and saw a great deal of service until he was wounded, on July 26, 1917, while observing for his battery during the bombardment preceding the British advance near Ypres. His wound appeared slight but septic poisoning and pneumonia developed. He died in a hospital at Boulogne on August 13, 1917.



ALFRED STANDISH MILLIKEN.

Second Lieutenant, United States Corps of Engineers.

Born in New Bedford, Mass., May 1, 1891.

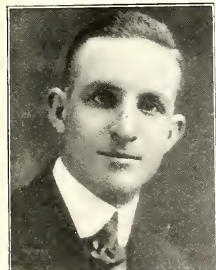
Prepared at the New Bedford High School.

Entered the Institute in 1910.

Graduated in the Course in Civil Engineering in 1914.

Member of the Phi Sigma Kappa fraternity, Freshman Tug-of-War Team, manager of the Sophomore Tug-of-War Team.

He entered the second Plattsburg training camp, from which he was graduated as a second lieutenant, and was assigned to the 6th United States Engineers. During the German offensive of March 21 the 6th Engineers were sent into the line near Villers-Bretonneux, and Lieutenant Milliken, who had charge of a section of Company D, defended a trench in front of the village of Warfusse-Abaucourt. All German assaults were repulsed, but during the afternoon of March 30 the position was subjected to a heavy bombardment during which Lieutenant Milliken was killed. A battery of coast artillery guns at Fort Rodman, New Bedford, has been named for him.



GEORGE LEWIS MACKAY.

First Lieutenant, United States Corps of Engineers.

Born Ocala, Florida.

Attended the Georgia School of Technology for one year.

Entered the Institute in 1910.

Graduated in the Course in Architecture in 1914.

Secretary of the Architectural Engineering Society.

At the outbreak of the war he volunteered and was assigned to the 42d Division. On arrival overseas he was sent to the Army Candidates' School for Officers at Langres and was graduated as first lieutenant. At the close of the course he was sent to the front to gain experience and volunteered to take part in a raid into the German lines on April 20, 1918. After the attack MacKay was missing. He was last seen engaged in a hand-grenade fight with five of the enemy near the German third-line trench. Lieutenant MacKay was posthumously awarded the Croix de Guerre.

TECHNOLOGY'S WAR RECORD



DINSMORE ELY.

Second Lieutenant, United States Air Service.

Born in Chicago, Ill., May 16, 1894.

Prepared at the Chicago Latin School.

Entered the Institute in 1914 and attended until 1917.

Studied in the Course in Architecture.

Member of the Lambda Chi Alpha fraternity, Sophomore Tug-of-War Team, Chorus of the Tech Show, Architectural Club, assistant editor of Technique.

In May, 1917, he volunteered for service with the Tech unit of the American Field Ambulance Service. Shortly after his arrival in France he enlisted in the Lafayette Flying Corps. He saw service as a member of the French Escadrille, Spad 102, in the Toul sector. On April 1 he received his commission as second lieutenant in the United States Air Service and was reassigned, at his own request, to his French Escadrille. While flying to rejoin it at Montdidier, he met with an accident near Villacoublay, France, on April 18, 1918, and died three days later at Versailles. A phrase used in his last letter to his parents, "It is an investment, not a loss, when a man dies for his country," was used throughout the United States in aid of the Liberty Loan campaigns.



ENOS CLIFFORD SAWYER.

First-Class Private, United States Field Artillery.

Born in Cambridge, Mass., November 3, 1893.

Prepared at the Rindge Technical School.

Entered the Institute in 1912 and attended until 1917.

Studied in the Course in Electrical Engineering.

Captain of the Freshman Relay Team.

On May 2, 1917, he enlisted in the 101st Field Artillery, 26th Division. He accompanied that division overseas, where he saw service in the sector about Toul and on the Chemin des Dames. On the afternoon of April 21, 1918, during the artillery duel following the affair at Seicheprey, he was killed near Boncourt by a high-explosive shell. The Cambridge Post of the American Legion was originally named for him.



LEWIS WILLIAM PRESCOTT.

First Lieutenant, Royal Flying Corps.

Born in Michigan, on October 12, 1891.

Prepared at the Washington (D.C.), Foreign Mission Seminary.

Entered the Institute in 1911.

Graduated in the Course in Mechanical Engineering in 1915.

Member of the Phi Sigma Kappa fraternity, Freshman Relay Team, Mechanical Engineering Society.

In July, 1917, he enlisted in the Royal Flying Corps at Toronto, Canada, being commissioned a second lieutenant, and continued his training at Fort Worth, Texas. He sailed for overseas on December 18, 1917. Having completed his training in England and Scotland, he went to the front as a scout pilot of the 23d Squadron, Royal Flying Corps, in early April, 1918, and was promoted to first lieutenant. On the afternoon of April 22, 1918, he was assigned a mission in the neighborhood of Dompierre, France, from which he never returned.

TECHNOLOGY'S ROLL OF HONOR



WILLIAM KEY BOND EMERSON, JR.

Second Lieutenant, United States Field Artillery.

Born in New York City, April 9, 1894.

Prepared at Middlesex School and was graduated from Harvard University in 1916. He was a member of the Crew and Football Squads and was also an editor of the *Crimson*.

Entered the Institute in 1916 and attended one term.

Studied in the Course in Mechanical Engineering.

In the spring of 1915 he volunteered for the American Field Ambulance Service and was sent to France, where he served with Section No. 3 in the Vosges. In January, 1917, he again volunteered and was sent to Serbia with the same section. While there he received the Croix de Guerre for "conspicuous bravery in rescuing the wounded under fire" near Monastir. Returning to France in September, 1917, he was commissioned second lieutenant, United States Field Artillery. He was trained as an artillery observer at Valdahon and was later attached to the 12th Aero Squadron. On May 14, 1918, he set out on a mission, piloted by Lieutenant C. M. Angell, '18, and met his death with the latter. Emerson Flying Field, Columbia, S.C., was named in his honor.



CYRIL MATTHEW ANGELL.

Second Lieutenant, Aviation Section, United States Signal Corps.

Born in Fall River, Mass., April 9, 1895.

Prepared at the Fall River High School and the Chauncy Hall School, Boston.

Entered the Institute in 1913 and attended until 1917.

Studied in the Course in Physics.

Member of the Sigma Chi Fraternity and candidate for the news staff of *The Tech*.

He enlisted in the Aviation Section of the United States Signal Corps in June, 1917, and received his training with the Royal Flying Corps, first at Toronto, Canada, and later at Fort Worth, Texas. On February 2, 1918, he was commissioned second lieutenant and ordered to England. A little later he was sent to France, where he served with distinction. He was killed on the afternoon of May 14, 1918, while on a mission, over the front line near Toul, accompanied by Lieutenant W. K. B. Emerson, Jr., '20. It appears that he was shot down by enemy anti-aircraft artillery or by a German airplane.



RAYMOND HENRY FELLOWS.

Private, United States Corps of Engineers.

Born in Concord, N. H., January 28, 1887.

Prepared at the Concord High School.

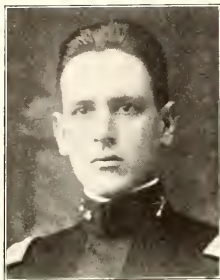
Entered the Institute in 1903.

Studied in the Course in Civil Engineering.

Member of the Civil Engineering Society.

At the outbreak of war he was at work as a contractor in Monson, Mass. He enlisted in April, 1917, and received his training at the Wentworth Institute training camp. He was assigned to the 101st Engineers, sailed for England in September, 1917, and saw service in the Toul sector, the Chemin des Dames and at Seicheprey. He was killed on July 16, 1918, while his unit was occupying the sector north of Château-Thierry.

TECHNOLOGY'S WAR RECORD



JAMES HILL HOLMES, JR., D. S. C.

Captain, United States Infantry.

Born in Charleston, S. C., October 9, 1895.

Graduated from the South Carolina Military Academy, 1915.

Entered the Institute in 1915 and, on account of illness, left a few months later.

In March, 1916, he became commandant of cadets at the Columbia Military Academy, Columbia, Tenn., in which position he continued until November of the same year, when he received a commission as second lieutenant in the United States Army. In March, 1917, he was married to Miss Anne Adela Folline, of Charleston, S. C. He saw service on the Mexican border, and was later transferred to the 26th Infantry, 1st Division, for overseas service. He received his captaincy and was assigned to command Company G, 26th Infantry, just before the offensive of July 18. He was killed in the neighborhood of Ploisy on July 19, 1918, while leading his company, under conditions which resulted in his receiving posthumously the Distinguished Service Cross and the Croix de Guerre.



HAROLD CLINTON WASGATT.

First Lieutenant, United States Infantry.

Born in Boston, Mass., June 13, 1896.

Prepared at the Everett High School and Phillips Andover Academy.

Entered the Institute in 1915 and attended until 1917.

Studied in the Course in Chemical Engineering.

Member of the Kappa Sigma fraternity, Freshman and Sophomore Tug-of-War Teams.

He attended the Plattsburg officers' training camp and was commissioned in the Officers' Reserve Corps but later resigned to accept a commission as second lieutenant in the Regular Army; he was assigned to the 59th Infantry. He specialized in machine-gun work and was promoted to first lieutenant and assigned to the machine gun company of his regiment. He accompanied his regiment overseas and took part in the defense of the Marne on the morning of July 15, 1918. During the advance of the 4th Division north of the Marne, on July 19, he was wounded by a machine-gun bullet and while on the way to the field hospital was struck by a shell and killed.



HADYN POTTER MAYERS.

Captain, United States Infantry.

Born in San Antonio, Texas, September 15, 1890.

Prepared at the San Antonio High School, and was later graduated from the Texas Agricultural and Mechanical College.

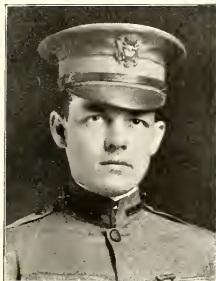
Entered the Institute in 1915 and attended until 1916.

Studied in the Course in Civil Engineering.

Member of Delta Upsilon fraternity.

On March 22, 1917, he was assigned, as second lieutenant, to the 57th Infantry, at Fort Leavenworth, Kansas. He was promoted to captain and sent overseas in April, 1918, with the 60th Infantry, 5th Division. On July 31, 1918, he conducted a raiding party in No Man's Land, in the Vosges Mountains, during which one of his men was wounded and fell into a ravine. Captain Mayers attempted to rescue him but was himself mortally wounded. For his bravery Captain Mayers is reported to have been recommended for the Distinguished Service Cross.

TECHNOLOGY'S ROLL OF HONOR



JAMES COUNCILL WOOTEN, 2d, D. S. C.

First Lieutenant, United States Coast Artillery Corps.

Born in Columbia, Tenn., August 7, 1896.

Prepared at the Columbia Military Academy and studied at the United States Naval Academy at Annapolis, from which he resigned in 1914.

Entered the Institute in 1914 and attended until 1917.

Studied in the Course in Mining Engineering.

Member of the Beta Theta Pi fraternity, treasurer of *The Tech*. Member of Technique Electoral Committee, ballet of the Tech Show, Freshman and Sophomore Tug-of-War Teams and Wrestling Team.

He was graduated from the first officers' training camp at Fort-tress Monroe in August, 1917, and sailed for France September 6. He volunteered as an Aerial Observer. He became a member of the first All-American Squadron and performed many photographic missions, winning the Croix de Guerre and Distinguished Service Cross and being recommended for the Legion of Honor. He shot down one enemy machine and was himself twice shot down. On August 1, 1918, near Château-Thierry he encountered a formation of six German planes and together with his pilot, Lieutenant Wold, was brought down after a hard-fought battle.



ARTHUR KINDRED ATKINS.

Second Lieutenant, United States Infantry.

Born on October 6, 1895.

Prepared at the Newton High School.

Entered the Institute in 1913 and attended until 1916.

Studied in the Course in Electrical Engineering.

Member of the Theta Delta Chi fraternity, manager of the Freshman Football Team, and won points in various meets.

He attended the first officers' training camp at Plattsburg in 1916 and trained during the winter of 1916-17 at Governor's Island, N. Y., and in New York City. In the spring of 1917 he was commissioned second lieutenant and went to Plattsburg as an instructor. In September he was sent overseas and assigned to the 42d Division. He was gassed at Lunéville on March 20 and was in hospital for two months. He was later assigned to Company C, 126th Infantry, 32d Division. On August 30 he led his company against the railway cut north of Juvigny but fell wounded by machine-gun bullets and died the next day in the field hospital at Villers-Cotterets.



KENYON ROPER.

Captain, United States Coast Artillery Corps.

Born in Steubenville, Ohio, March 31, 1895.

Attended Oberlin College.

Entered the Institute in 1915 and attended until 1917.

Studied in the Course in Architecture.

Member of Chi Phi fraternity, manager of Hockey Team, assistant art editor of *Technique* 1918.

Enlisted in April, 1917, and entered the Coast Artillery Corps as a second lieutenant on May 2. On August 7 he was promoted to first lieutenant. He sailed for overseas December 17, 1917, and the following March received his captaincy. He took part in the Château-Thierry and St. Mihiel operations, and was reported "missing" on September 14, 1918, during the latter engagement. It would appear that he was shot down together with his pilot, Lieutenant Paul Hughey, near Puxieux, though his grave has never been located with certainty. He is reported to have been recommended for the Distinguished Service Cross.

TECHNOLOGY'S WAR RECORD



JOHN COWPERTHWAITA TYLER.

First Lieutenant, United States Air Service.

Born in Brooklyn, New York, May 25, 1893.

Prepared at the Brooklyn Polytechnic Preparatory School and was graduated from Williams College in 1915.

Entered the Institute in 1915.

Graduated in the Course in Mechanical Engineering in 1917.

He enlisted in the Aviation Section, United States Signal Corps, in June, 1917, and went overseas in August, 1917. He received his flying training in France and served for two months as bombing pilot with the French Escadrille, Bréguet 129. On July 16, 1918, he received the Croix de Guerre. He was transferred as flight leader to the 11th Aero Squadron of the United States Army during the latter part of August, 1918. On September 18, 1918, Lieutenant Tyler was shot down in a combat with the Richthofen Circus not far from Conflans.



GEORGE NATHAN ALTHOUSE.

First Lieutenant, United States Infantry.

Born in Norristown, Penn., February 3, 1894.

Prepared at Mercersburg Academy, Mercersburg, Penn.

Entered the Institute in 1911 and attended until 1915.

Studied in the Course in Chemical Engineering.

Member of Lambda Chi Alpha fraternity, Freshman and Sophomore Tug-of-War Teams, Captain of the Corps of Cadets.

At the outbreak of war he attended the officers' training camp at Fort Niagara, N. Y., being commissioned second lieutenant, and was assigned to the 79th Division. He was promoted to first lieutenant, went overseas with his unit and took part in the first days of the Meuse-Argonne offensive. Sometime during the afternoon of September 28 he took part in an attack with tanks on a small woods, probably the Bois-des-Ogons. As he was crossing the ridge north of Nantillois he fell, at the head of his men, mortally wounded and died next day.



ROBERT ALEXANDER MACKAY.

Second Lieutenant, United States Infantry.

Born in Boston, Mass., January 23, 1895.

Prepared at the Mechanic Arts High School and attended the University of Maine one year.

Entered the Institute in 1915 and attended one year.

Studied in the Course in Mechanical Engineering.

He entered the first officers' training camp at Plattsburg and was graduated with the rank of second lieutenant and assigned to the Third Machine Gun Battalion of the First Division. Early in September, 1917, he went overseas with his unit and took part in the early actions of the division. He was reported wounded on July 20, during the Marne offensive, when the First Division was advancing on Berzyle-Sec. He returned to the line in time to take part in the Meuse-Argonne offensive, and was killed by shell fire on September 29, as his unit was advancing in close support of the 35th Division.

TECHNOLOGY'S ROLL OF HONOR



HENRY OSCAR SOMMER.

First Lieutenant, United States Infantry.

Born in Alameda, Calif., September 1, 1890.

Prepared at the James Lick High School, San Francisco.

Attended the University of California.

Entered the Institute in 1912.

Graduated in the Course in Electrical Engineering in 1916.

Member of the Junior Crew.

Entered the United States Army and served on the Mexican border.

In the fall of 1917 he was sent to Camp Wadsworth, S. C., with the 108th Infantry, 27th Division. He went overseas in May, 1918, and was promoted to the rank of first lieutenant. He saw service in the offensive operations south of Ypres in August, 1918, and accompanied his regiment in the assault of September 29, against the Hindenburg line opposite Le Catelet, and the famous Canal Tunnel. During this attack, which caused the 108th Infantry very heavy casualties, Lieutenant Sommer lost his life.



SELIGMAN BERNEI AUSTRIAN.

Corporal, United States Infantry.

Born in Baltimore, Md., June 13, 1888.

Prepared at Marston's University School and later attended Johns Hopkins University.

Entered the Institute in 1905 and attended until 1908.

Studied in the Course in Civil Engineering.

President of Special Athletic work: football.

Entered the service on November 6, 1917, and went overseas in July, 1918. He was a member of Company D, 313th Infantry, 79th Division. During the Meuse-Argonne operation he took part in the capture of Montfaucon, but was killed by a shell on October 2, shortly after the relief of his unit by the 3d Division.



CHARLES McLEAN SMITH.

Private, United States Infantry.

Born in Hartford, Conn., July 6, 1886.

Prepared at the Hartford High School and was graduated from Yale University in 1908.

Entered the Institute in 1908 and attended until 1910.

Studied in the Course in Electrical Engineering.

In February, 1918, he was called to the service and assigned to Company G, 308th Infantry, 77th ("Metropolitan") Division. He went overseas with that division and took part in the engagement along the Vesle and in the Meuse-Argonne. In the severe fighting for the possession of the Bois d'Apremont, a portion of the Argonne Forest, he was mortally wounded, and died October 4, 1918.

TECHNOLOGY'S WAR RECORD



PERCY ADAMS RIDEOUT, D. S. C.

First Lieutenant, United States Corps of Engineers.

Born in Ashburnham, Mass., October 16, 1888.

Prepared at the Concord (Mass.) High School.

Entered the Institute in 1907.

Graduated in the Course in Civil Engineering in 1911.

Engaged for several years as government highway engineer in the Southwest.

Early in 1917 he enlisted in the 101st Engineers, 26th Division. On September 25, 1917, he went to France and was shortly afterwards commissioned second lieutenant and transferred to the 116th Engineers. In July he was made a first lieutenant. In the early summer of 1918 he volunteered for service with the 30th Engineers, later known as the 1st Gas Regiment, and took part in the Second Battle of the Marne and the St. Mihiel offensive. From October 4 to October 8 he was assigned a mission to aid the advance of the 3d Division from Cierges to Bois de Cunel. For his conduct throughout the operation he was awarded the Distinguished Service Cross, but he was killed on October 8, while making final arrangements for laying a smoke screen at Bois de Cunel.



EDGAR DORUS BASCOM.

Second Lieutenant, United States Infantry.

Born in Gill, Mass., August 24, 1892.

Prepared at the Greenfield High School.

Entered the Institute in 1911.

Graduated in the Course in Civil Engineering in 1915.

Member of the Civil Engineering Society.

He entered two training camps but failed to receive a commission. He was drafted but refused because he was underweight. He nevertheless enlisted as a private in the 101st Engineers, 26th Division, and accompanied that unit to France. He was promoted to second lieutenant and transferred to the 101st Infantry. He saw service at Seicheprey and at the Marne. He was killed during the Meuse-Argonne offensive on the morning of October 24, 1918, during the attack against Bois de Wavrille, on the heights of the Meuse.



HAROLD SCHAFFER.

Lieutenant, Canadian Engineers.

Born in Dublin, Ireland, December 25, 1887.

Studied at the South African College, Cape Town.

Entered the Institute in 1905.

Graduated in the Course in Mining Engineering in 1909.

When the United States entered the war he enlisted as a private in the Canadian Engineers. He shortly afterwards received a commission as lieutenant and went abroad with the 7th Canadian Engineers. He was killed near Thiers, France, on October 30, 1918.

TECHNOLOGY'S ROLL OF HONOR



CHARLES BOWEN BUSEY.

Second Lieutenant, United States Infantry.

Born in Urbana, Illinois, January 22, 1887.

Graduated from the University of Illinois in 1908.

Entered the Institute 1908 and attended for one year.

Studied in the Course in Mechanical Engineering.

He entered the first training camp at Fort Sheridan and received a commission as second lieutenant. He was ordered overseas in December, 1917, and made instructor in musketry and bayonet work at the Army Specialist School at Langres, France. Desiring to gain experience in actual combat, he requested to be assigned to an active division for experience. Accordingly, the latter part of October, he was attached to the 78th Division, and on November 1 took part with that organization in the attack from the St. Juvin-Grand Pré Road against the Bois de Loges. The advance was held up by a German machine-gun nest. Lieutenant Busey, with three others, volunteered to capture the gun. The party was successful but Lieutenant Busey and two of the others were killed.



GEORGE ALBERT BEACH.

Cadet, Aviation Section, United States Signal Corp.

Born at Fort Collins, Colo., June 25, 1893.

Prepared at the Fort Collins High School.

Entered the Institute in 1911.

Graduated in the Course in Mechanical Engineering in 1914.

Member of Sigma Alpha Epsilon fraternity, chorus of the Tech Show, Executive Committee of the class, editor of Technique, chairman of Union Committee, member Class Day Committee.

At the outbreak of the war he was working in South America but at once returned and enlisted in the Aviation Section of the United States Signal Corps and was given his ground training at the Institute. He received his commission and was sent for final training to Italy. He was killed at Foggia in a collision above the flying field on January 20, 1918.

(Photo by Boston Photo News Co.)



CHARLES EDWARD JONES.

Cadet, Aviation Section, United States Signal Corps.

Born in Pittsfield, Mass., January 7, 1894.

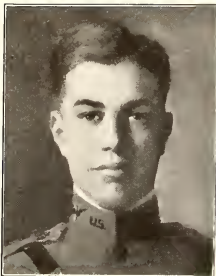
Prepared at The Hill School, Pottstown, Pa., and was graduated from the Sheffield Scientific School of Yale University with high honors in 1915.

Entered the Institute in 1915 and attended one year.

Studied in the Course in Chemical Engineering.

In 1916 he attended the Plattsburg training camp. He entered the 1917 camp also, and while there enlisted in the Aviation Section of the United States Signal Corps. He received his ground training at the Institute and in October went overseas to train as a pilot. He lost his life in an airplane accident in Avord, France, on February 15, 1918.

TECHNOLOGY'S WAR RECORD



THOMAS CUSHMAN NATHAN.

First Lieutenant, Aviation Section, United States Signal Corps.

Born in Dorchester, Mass., January 21, 1897.

Prepared at the Newton High School and attended Dartmouth College.

Entered the Institute in 1916 and attended until 1917.

Studied in the Course in Engineering Administration.

President of the Class of 1920, captain of the Freshman Football Team, member of the chorus of the Tech Show.

Early in the war he enlisted in the Aviation Section of the United States Signal Corps and was sent for training to Ayr, Scotland, at which place he received his commission as first lieutenant. While engaged in a mock combat with the commandant of the training school, on March 20, 1918, after a sudden evolution, the wings of his machine collapsed and Lieutenant Nathan fell, being instantly killed. Subsequent investigation proved that the machine was defective.



JAMES DE GRIER MAY.

Lieutenant, Aviation Section, United States Signal Corps.

Born in Brooklyn, N. Y., July 31, 1896.

Prepared at the Brooklyn Polytechnic Preparatory School.

Entered the Institute in 1914 and attended until 1916.

Studied in the Course in Chemical Engineering.

Member of the Beta Theta Pi fraternity, Fencing Team, Executive Committee of class, second assistant manager of the Tech Show (1915), Tech Electoral Committee, assistant in stage department of Tech Show (1916).

Soon after the outbreak of the war he enlisted in the Aviation Section of the United States Signal Corps. He became a very expert flyer and was detailed as instructor in acrobatic flying at Kelly Field, Texas. While engaged in instruction of inexperienced aviators Lieutenant May lost his life, on May 9, 1918, when his machine crashed, due to the loss of control at low altitude.



GEORGE ROPER, JR.

First Lieutenant, Royal Flying Corps.

Born in Steubenville, Ohio, May 15, 1893.

Prepared at the Tome Institute, Md., and MacKenzie School, Dobbs Ferry, N. Y.

Entered the Institute in 1913.

Graduated in the Course in Mining Engineering in 1917.

Member of Chi Phi fraternity, Walker Club, Mining Engineering Society, Freshman and Sophomore Football Teams, Freshman Cross-Country Team, Sophomore Relay Team, Technique Electoral Committee, Technique societies editor.

In April, 1916, he received a commission as second lieutenant in the United States Signal Reserve Corps, and applied for active service. As he was not assigned to active duty at once he enlisted in the Royal Flying Corps and received his training at Toronto and Fort Worth, Texas, whence he was sent to England. He had finished his course and received his advancement to first lieutenant, but on May 25, 1918, he lost his life in an airplane accident in a practice flight.

TECHNOLOGY'S ROLL OF HONOR



ALFRED THEODORE WYMAN.

Second Lieutenant, Royal Flying Corps.

Born in Fitchburg, Mass., December 28, 1892.

Prepared at the Fitchburg High School.

Entered the Institute in 1912.

Graduated in the Course in Architecture in 1916.

Member of the Delta Psi fraternity, president of the class in 1914, member of the 1915 Prom Committee, Architectural Society and Osiris.

Shortly after graduation he entered the Royal Flying Corps. He was commissioned and sent, for further training, to England, being assigned to the training field at Tangmere. He died in Graylingwell Hospital, Chichester, on May 27, 1918, as the result of an airplane accident.



LEROY AMOS SWAN.

Second Lieutenant, Aviation Section, United States Signal Corps.

Born in Norwich, Conn., July 5, 1894.

Prepared at the Norwich Free Academy.

Entered the Institute in 1913.

Graduated in the Course in Mechanical Engineering in 1917.

Member of Sigma Alpha Epsilon, Osiris, Walker Club, Masque, Beaver, Mechanical Engineering Society, Theta Tau, Technique Electoral Committee, Glee Club, Tech Show, portfolio editor of Technique, Class Day Committee.

He enlisted in the Aviation Section of the Signal Corps in July, 1917, and received his training at Toronto and at the Institute. In September he was commissioned. On November 22 he was married to Miss Edna Troland, of Norwich, Conn. He was ordered to the Wilbur Wright Field in February and lost his life on June 19, 1918, when his machine collapsed in mid-air after a nose dive.



ARTHUR MAXWELL PARSONS.

Second Lieutenant, Aviation Section, United States Signal Corps.

Born in Gloucester, Mass., December 11, 1895.

Prepared at the Gloucester High School.

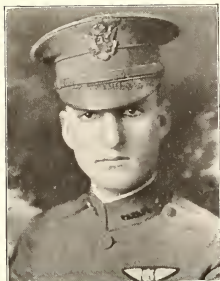
Entered the Institute in 1914 and attended until 1916.

Studied in the Course in Sanitary Engineering.

Member of the Theta Chi fraternity, Sophomore Football Team, and Wrestling Team, first lieutenant M. I. T. Corps of Cadets.

He enlisted in the Aviation Section of the United States Signal Corps and was commissioned second lieutenant and assigned to Tallaferro Field, Fort Worth, Texas. On the afternoon of July 2, 1918, he observed a fellow-aviator in trouble and flew to Hicks Field to get assistance. In his haste in descending from the machine, he slipped and fell in such a manner that the propeller struck his head, inflicting an injury from which he died the next day.

TECHNOLOGY'S WAR RECORD



ALEXANDER HEVIA SANTOS.

Second Lieutenant, Aviation Section, United States Signal Corps.

Born in Short Hills, N. J., March 19, 1898.

Prepared at St. James' School, Hagerstown, Md.

Entered the Institute in 1915 and attended until 1917.

Studied in the Course in Mechanical Engineering.

Member of Delta Psi fraternity.

In the spring of 1917 he joined Battery A of the Maryland Field Artillery and was transferred to the Aviation section of the United States Signal Corps. He was commissioned second lieutenant and sent to the Post-Graduate Ground Officers' School at Brooks Field, San Antonio, Texas, for training in acrobatic flying. Being a skillful flyer he was made an instructor. While attempting a "forced landing," on July 15, 1918, his pupil threw the machine into an aileron spin. Lieutenant Santos succeeded in regaining partial control and in saving the life of the student, but he himself was fatally injured and died soon after his arrival at the Fort Sam Houston Base Hospital.



MALCOLM COTTON BROWN.

First Lieutenant, Royal Flying Corps.

Born in Chicago, Ill., March 26, 1897.

Prepared at St. Paul's School, Concord, N. H., and studied at Harvard University for one year.

Entered the Institute in 1915 and attended until 1917.

Studied in the Course in Physics.

Member of Phi Gamma Delta fraternity, Tech Show for two years, on news staff of *The Tech* and later associate editor.

In the summer of 1917 he attended Camp Cunningham. On his way home he stopped at Toronto, Canada, and enlisted in the Royal Flying Corps. He received training at Fort Worth, Texas, and was commissioned. In February, 1918, he sailed for England, where he became a first lieutenant and continued his training. While making a flight over the airdrome near Gloucester on July 23, 1918, Lieutenant Brown's machine, which was of an obsolete pattern collapsed, causing his death. A fellowship amounting to one thousand dollars yearly for a graduate of the Course in Physics has been established in the name of Malcolm Cotton Brown by Lieutenant Brown's parents.



DONALD CARY PERO.

Ensign, United States Naval Reserve Force (Aviation).

Born at Springfield, Mass., January 14, 1896.

Prepared at the Springfield Technical High School.

Entered the Institute in 1915 and attended until 1917.

Studied in the Course in Mechanical Engineering.

Member of the Tech Show.

With the formation of the Naval Aviation Detachment at the Institute he enlisted and after finishing his course in ground work was sent to Norfolk, Va., for training in flight. In January he was sent to Pensacola. Later he was commissioned ensign and sent to Rockaway Beach as an instructor. On August 24, 1918, he was killed in a sea-plane collision during the fog, off Fire Island, New York.

TECHNOLOGY'S ROLL OF HONOR



WALTER FRANCIS BUCK.

First Lieutenant, Aviation Section, United States Signal Corps

Born in Provincetown, Mass., July 18, 1896.

Prepared at the Brockton High School and entered Wesleyan University in fall of 1913.

Entered the Institute in 1915 and attended until 1916.

Immediately upon the outbreak of the war he enlisted, although under age, in the Aviation Section of the United States Signal Corps, and was sent to Kelly Field, Texas, where he became known as a most daring and skillful flyer. He was commissioned first lieutenant and retained at the field as instructor in acrobatic flying. On April 26, 1918, he was married to Miss Mab Casey, of San Antonio. He had trained forty-four pilots for overseas duty, when on September 7, 1918, after landing, he was requested by a mechanic to take up another ship for a trial. At an altitude of four thousand feet both wings suddenly dropped off and Lieutenant Buck fell to his death. Investigation showed that the main wing pins of steel had been withdrawn and wooden ones substituted in their place—the work of a spy.



WILLIAM FRANKLIN HERRICK.

First Lieutenant, Aviation Section, United States Signal Corps.

Born in Natick, Mass., July 31, 1890.

Prepared at the Newton High School.

Entered the Institute in 1907 and attended until 1908.

Studied in the Course in Mechanical Engineering

Member of the Tech Show and manager of the Golf Club.

At the outbreak of the war he enlisted in the Aviation Section of the United States Signal Corps and received his ground training at the Institute. He was sent to France in November, 1917, and was later transferred to Foggia, Italy, where he was commissioned 1st lieutenant. He had qualified to go to the front and was awaiting orders at the time of his death in an airplane accident, on September 16, 1918, at Issoudun, France.



WILLIAM GRIFFITH SPRAGUE.

Ensign, Naval Reserve Force (Aviation).

Born in Chicago, Ill., July 13, 1895.

Attended the University of Michigan two years.

Entered the Institute in 1913.

Graduated in the Course in Architecture in 1916.

Member of Beta Theta Pi fraternity, Architectural Society (served as secretary for one year), Executive Committee of class, assistant art editor of *Technique*, Scenery Committee of Tech Show.

At the outbreak of the war he enlisted in the naval aviation service and received his ground training at the Institute. He was sent overseas, qualified as a pilot, and was assigned to the Montchic Training School at Ile Tudy, France. On October 26, 1918, while flying over the English Channel, he engaged a hostile submarine, being accredited with a "probable sinking." As he was returning to the station, however, about two in the afternoon, his machine crashed and Ensign Sprague was drowned. At his funeral service he was awarded the *Croix de Guerre*.

TECHNOLOGY'S WAR RECORD



CHESTER ROBINSON TUTEIN.

Second Lieutenant, Aviation Section, United States Signal Corps.

Born in Revere, Mass., May 17, 1895.

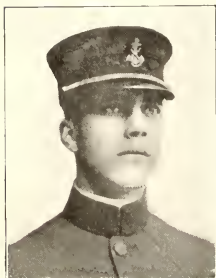
Prepared at the Winchester (Mass.) High School.

Entered the Institute in 1914 and attended until 1917.

Studied in the Course in Mechanical Engineering.

Member of the Theta Delta Chi fraternity, Freshman and Sophomore Tag-of-War Teams, Freshman and Sophomore Hockey Teams, Sophomore representative in Athletic Association, member of Technique Board, Electoral Committee.

In June, 1917, he sailed as a member of the American Ambulance Service and later became a member of the Camion Service of the French Army (Reserve Mallet), but in November he was released from the French service and volunteered for the Aviation Section of the United States Signal Corps. He completed his training in January, 1918, received his commission, and was shortly afterwards assigned to the 148th Aero Squadron, with which organization he saw service during the summer and fall of 1918. He died, in France, on November 17, 1918, as the result of an airplane accident.



ERMOND ALBERT TAYLOR.

Cadet, United States Navy Reserve Force (Aviation).

Born in Philadelphia, Penn., May 27, 1898.

Prepared at the Brunswick School, Greenwich, Conn.

Entered the Institute in 1916 and attended one year.

Studied in the Course in Mechanical Engineering.

Member of the Sigma Alpha Epsilon fraternity, and of the chorus of the Tech Show.

In June, 1917, he left the Institute and entered Columbia University, where he was prominent in athletics and in student activities. In 1918 he enlisted in the Naval Aviation service and received his ground training at the Institute, where he was made cadet commanding officer. In October he was transferred to Miami, Fla., where he became commander of the cadet beach squadron. He had practically completed his training as a pilot and was awaiting his commission and wings when, on February 19, 1919, his engine stopped, from overheating, while he was in flight. The seaplane fell, crashing into the bay, and caused Cadet Taylor's death.



IRVING KENNARD.

Cadet, United States Air Service.

Born in Melrose, Mass., March 14, 1896.

Prepared at the Melrose High School and Mount Hermon School.

Entered the Institute in 1915 and attended until 1916.

Studied in the Course in Electrochemical Engineering.

Studied at the Pennsylvania State College for two years.

Member of Phi Gamma Delta fraternity.

He entered the first officers' training school at Madison Barracks, but without completing the course enlisted in the 15th Aero Squadron. When the supply of pilots exceeded the supply of planes, he was transferred to the Balloon School at Arcadia, Calif. On the morning of February 20, 1919, he was doing observation work accompanied by five other balloonists. The wind was so high that Kennard's balloon was thrown against the cable of his neighbor, and the suspension ropes of the basket made a complete turn. He was too low to make a parachute jump. A few minutes later the suspension ropes on the basket were severed, and Kennard was thrown to his death.

TECHNOLOGY'S ROLL OF HONOR



FREDERICK S. HARTMAN.

Second Lieutenant, Aviation Section, United States Signal Corps.

Born in Troy, N. Y., April 12, 1890.

Attended the University of Saskatchewan.

Entered the Institute in February, 1913, and left before June of that year.

He became famous for his performance during the great Dog Derby Race from Winnipeg to St. Paul, in January, 1917. When his leading dog was killed, he himself took the place of the leader and continued the race.

In 1917 he enlisted in the Aviation Section of the United States Signal Corps and received his ground training at the Institute. He was commissioned second lieutenant and served as an instructor at several flying schools in the United States but went overseas just too late to take part in the hostilities. He lost his life in an airplane accident at Toul, France, on April 7, 1919, just before being ordered home for demobilization.

Photo by Boston Photo News Co.



FRANCIS MALCOLM FOWLER.

Ensign, United States Naval Reserve Force (Aviation).

Born in Newburyport, Mass., April 9, 1896.

Prepared at the Salem High School.

Entered the Institute in 1915 and attended until 1916.

Studied in the Course in Chemistry.

During the Mexican difficulty he went to the border as a member of the First Massachusetts Field Artillery, and on his return became a designer for the Burgess Aeroplane Company.

He enlisted in the United States Naval Reserve on December 11, 1917, and was assigned, on January 1, 1918, to the Naval Aviation Detachment at the Institute. He received his commission as ensign in July and in August was transferred to the Bureau of Construction and Repair, Washington, D. C., with additional temporary duty at Akron, Ohio. In March, 1919, he was sent to the Naval Air Station at Pensacola, Fla., where he was appointed a student naval aviator for duty involving actual flying. He died as the result of a fall in his seaplane on the morning of May 17, 1919, at Pensacola.



REED HAMILTON HASLAM.

Second Lieutenant, Aviation Section, United States Signal Corps.

Born in Hyde Park, Mass., July 8, 1896.

Prepared at the Hyde Park High School.

Entered the Institute in 1913 and attended until 1915.

Studied in the Course in Mechanical Engineering.

On November 5, 1917, he enlisted in the Aviation Section of the United States Signal Corps and received his ground training at the Institute. He received later training at Carlstrom Field, Fla., and was commissioned second lieutenant. He was under orders to go overseas when the armistice was signed but these orders were revoked. He was later stationed at the various fields throughout the United States and finally assigned to Kelly Field, San Antonio, Texas, where he had charge of assembling and testing planes. On August 23, while testing a new plane, the latter fell into a tail spin when only about two hundred feet from the ground. Lieutenant Haslam was unable to regain control and was instantly killed.

TECHNOLOGY'S WAR RECORD



HENRY OLIVER TOVEY.

Ensign, United States Navy.

Born in Watseka, Ill., January 8, 1892.

Prepared at the Watseka High School and was graduated from the United States Naval Academy in 1915 with distinction.

Entered the Institute in 1916 and attended until December of that year.

Studied in the Course in Naval Architecture.

In December, at his own request, he was assigned to the U. S. S. "Maine." While delirious from fever he wandered about the ship on the night of March 22, 1917, and fell overboard. As the ship was in the submarine zone and was running without lights, it was impossible to rescue him.



REUBEN AREY.

Lieutenant (Junior Grade) United States Naval Reserve Force.

Born at Lowell, Mass., August 6, 1890.

Prepared at the Rindge Manual Training School, Cambridge.

Entered the Institute in 1909 and attended until 1913.

Studied in the Course in Civil Engineering.

At the outbreak of war he took examinations for second officer in the Merchant Marine and took out a license as a navigator. Later he received a commission as lieutenant in the United States Navy Reserve Force and was appointed navigating officer on board the U. S. S. "Wenonah," a converted yacht. He saw service in the Mediterranean and was appointed executive officer of the ship. On the night of December 23, 1918, he was washed overboard during a hurricane, and all efforts to rescue him were unavailing.



EMILE BERTRAND GAILLAC.

Private, United States Corps of Engineers.

Born in Chelsea, Mass., December 5, 1896.

Prepared at the Chelsea High School.

Entered the Institute in 1914 and attended until 1917.

Studied in the Course in Mechanical Engineering.

Member of the Aero Club, Mechanical Engineering Society, and Technology Christian Association.

He enlisted in July, 1917, with the 101st Engineers, 26th Division, and trained at the Wentworth Institute, Boston. He was one of six men, out of more than eighteen hundred, to receive an award of special merit for excellence as an instructor. In September he went overseas with his regiment as a member of Company C. He died in France, of broncho-pneumonia, on November 7, 1917.

TECHNOLOGY'S ROLL OF HONOR



CHAUNCEY DAVIS BRYANT.

Private, United States Corps of Engineers.

Born in Chicopee, Mass., December 16, 1891.

Prepared at the Chicopee High School.

Entered the Institute in 1910.

Graduated in the Course in Sanitary Engineering in 1914.

Member of the Theta Delta Chi fraternity, Class Football Team, Technique Electoral Committee, and Class Day Committee.

At the outbreak of war he enlisted in the 101st Engineers (formerly 1st Corps of Cadets) and went overseas with that organization in September, 1917. He died of ptomaine poisoning on January 5, 1918.



GORDON STEWART.

Cadet, Aviation Section, United States Signal Corps.

Born on March 15, 1896.

Prepared at the Chauncy Hall School, Boston.

Entered the Institute in 1916 and attended one term.

Member of the Sigma Alpha Epsilon fraternity and of the Swimming Team.

He enlisted in the American Ambulance Service when the United States entered the war, and after six months' service with that organization, during which he was decorated with the Croix de Guerre, he joined the Aviation Section of the United States Army. He died, in France, of spinal meningitis on January 9, 1918.



CHARLES SNEAD McDONALD.

American Red Cross.

Born in Louisville, Ky., February 19, 1879.

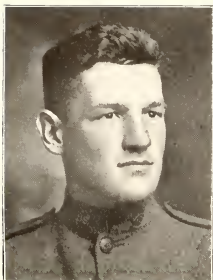
Prepared at the Louisville High School and at the Newton High School, Newton, Mass.

Entered the Institute in 1895 and attended until 1898.

Studied in the Course in Architecture.

When the war broke out he was in business, as an architect, in Salt Lake City, Utah, being an authority on concrete construction. Not being able to pass the physical examination for the Army on account of a stiff knee, he accepted an appointment with the Reconstruction and Relief Commission of the American Red Cross and sailed for France on March 14, 1918. On his arrival in France he was taken ill with meningitis, and died on April 14 in the American hospital at Neuilly.

TECHNOLOGY'S WAR RECORD



PRESCOTT WILDER GOULD.

Sergeant, United States Infantry.

Born in Newton Upper Falls, Mass., February 23, 1894.

Prepared at the Newton High School.

Entered the Institute in 1913 and attended until 1915.

Studied in the Course in Mechanical Engineering.

Member of the Phi Beta Epsilon fraternity, and of the Freshman Football and Tug-of-War Teams.

Enlisted in Company C, 1st Cavalry, and went to the Mexican border. His unit was later reorganized as the 102d Machine Gun Battalion, with which Gould went abroad in September, 1917. He was promoted to a corporal in August, 1917, and to sergeant in April, 1918. He died at a Base Hospital in France on May 16, 1918.



FRANK RONALD SIMMONS.

Captain, Infantry, Second Section United States General Staff.

Born on May 16, 1885.

Graduated from Yale University in 1907.

Entered the Institute in 1907 and attended until 1910.

Studied in the Course in Architecture.

When the war broke out, in 1914, he was a student and artist of merit in Paris, having been one of the organizers of the American Committee of the Ecole des Beaux-Arts. In the winter of 1916-17 he was active in the work with convalescent homes conducted under the direction of Mrs. Edith Wharton, the American novelist. In March, 1917, he became a civilian member of the American Military Commission, headed by Major Churchill. He was soon after made a first lieutenant of Infantry, and later a captain, and attached to the Intelligence Service, having charge of the Inter-Allied Bureau in Paris. In July, 1918, he had charge of the Intelligence Section, Service of Supply, at Bordeaux. He died of pneumonia at the British Base Hospital at Camp Mussot, Marseille, on August 12, 1918.



BRUCE RITCHIE HONEYMAN.

Captain, United States Corps of Engineers.

Born in Portland, Oregon, December 30, 1884.

Prepared at the Portland Academy.

Entered the Institute in 1902.

Graduated in the Course in Architecture in 1906.

Member of his class Executive Committee; Class Day Committee; Architectural Society; Freshman, Sophomore and Junior Baseball Teams.

He entered the first officers' training camp at Fort Snelling, Minnesota, in May, 1917. He was commissioned captain of Engineers and commanded Company A, 313th Engineers, 88th Division, Camp Dodge. He sailed for France in August, 1918, and on arrival was sent to the Belfort sector. He was sent forward to reconnoiter a new sector, but returned with an advanced case of influenza which resulted in pneumonia. He died on October 5, 1918, and was buried near Herricourt, France.

TECHNOLOGY'S ROLL OF HONOR



ARLO ELLSWORTH GARNSEY.

Second Lieutenant, United States Air Service.

Born in Red Bank, N. J., April 14, 1895.

Prepared at the Hackley School, Tarrytown, New York.

Entered the Institute in 1915 and attended until 1917.

Studied in the Course in Electrical Engineering.

Member of the Delta Upsilon fraternity, treasurer of the Freshman Class, news staff of *The Tech.*, Institute Committee, Technique Electoral Board.

He attended the 1916 and 1917 officers' training camps at Plattsburg, and later entered the Ground School at the Institute, finishing the course in December. He was commissioned second lieutenant in the Aviation Section of the United States Signal Corps in April, 1918, and was later sent overseas. He died of broncho-pneumonia in Naval Hospital No. 1, at Brest, France, on October 11, 1918.



ERNEST ALONZO WARE.

Captain, United States Corps of Engineers.

Born in Somerville, Mass., August 22, 1886.

Prepared at the Somerville English High School.

Entered the Institute in 1905.

Graduated in the Course in Sanitary Engineering in 1909.

Member of the Freshman Tug-of-War Team.

Attended the first officers' training camp at Plattsburg, N. Y., and was commissioned first lieutenant on May 15, 1917. After training at Camp Upton and Camp Lee he sailed with the 506th Service Battalion (Engineers) for France, on January 1, 1918. He was stationed as a provost officer at and near Bordeaux. On October 11 he died of pneumonia. After his death his parents received his commission as captain, dated September 27, 1918.



EDWARD PORTER ALEXANDER.

First Lieutenant, United States Corps of Engineers.

Born on November 4, 1891.

Attended the University of Minnesota.

Entered the Institute in 1910.

Graduated in the Course in Civil Engineering in 1914.

Member of Phi Kappa Sigma fraternity, Wrestling Team, Relay Team.

Entered the service in 1917 and was sent overseas with the 509th Engineer Service Battalion, and was stationed at Montoir, France. He was about to be promoted to captain, after six months' service abroad, when he died, in October, 1918.

TECHNOLOGY'S WAR RECORD



ANDREW JACKSON-LOWNDES.

Captain, United States Quartermaster Corps.

Born in Baltimore, Md., April 6, 1884.

Graduated from the Baltimore Polytechnic Institute, taking the full course and also a post-graduate course, and at the close of the scholastic year was honor man of the class.

Entered the sophomore class at Cornell University in 1902.

Entered the Institute in the spring of 1903, studying in the Course in Mechanical Engineering.

The following year he returned to Cornell University, from which he was graduated with high honors in 1905.

When war was declared he was commissioned captain in the Quartermaster Corps and sent abroad in April, 1918, in charge of a casual medical unit of 390 men. On arrival in France he was made superintendent of transports of the port of La Pallice. He continued in this position until his death from pneumonia, on October 17, 1918.



THEODORE RENTROPE PROTUY.

Second Lieutenant, United States Infantry.

Born in Brockton, Mass., June 5, 1889.

Prepared at the Chauncy Hall School, Boston.

Entered the Institute in 1908.

Graduated in the Course in Architecture in 1912.

Member of the Executive Committee of the Architectural Society.

Attended Columbia University 1912-13 and later the Sorbonne, Paris.

He attended the officers' training camp at Plattsburg in May, 1917, and received a commission in August, being assigned to Company I, 301st Infantry, Camp Devens, Mass. He went overseas in January on detached service. He died at General Headquarters (Chaumont), of pneumonia, on October 23, 1918.



MALCOLM BRUCE BROWNLEE, JR.

Private, United States Infantry.

Born in Butte, Mont., March 8, 1889.

Prepared at the Middlesex School, Concord, Mass.

Entered the Institute in 1907 and attended until 1911.

Studied in the Course in Mining Engineering.

Member of the Delta Psi fraternity, Entertainment Committee of the Union, secretary of the Technology Christian Association.

He entered the service April 29, 1918, and was sent to Camp Meade, Md. After a few weeks in camp he was assigned to the machine gun company of the 313th Infantry, 79th Division, which landed in France in July. Brownlee was transferred to the Headquarters' Platoon, where he acted as interpreter and runner. He took part in the Meuse-Argonne, participating in the storming of Montfauçon, and later saw service in a sector east of Verdun. He died in Base Hospital 52, on October 26, 1918.

TECHNOLOGY'S ROLL OF HONOR



KARL CUSHING MCKENNEY.

Captain, United States Coast Artillery Corps.

Born in Charlestown, Maine, in 1890.

Prepared at the Wellesley (Mass.) High School.

Entered the Institute in 1908.

Graduated in the Course in Electrical Engineering in 1912.

Member of the Freshman and Sophomore Tug-of-War Teams, news staff of *The Tech*, chorus of Tech Show.

He entered the service in August, 1917, and after three months at an officers' training camp was commissioned a captain and assigned to E Battery, 49th Coast Artillery, at Fort Andrews, Boston. In February, 1918, he was married to Miss Virginia Courtney, of Hancock, Mich. In April he was placed in command of Fort Warren, Boston, but was later ordered to Camp Eustis, Va., to prepare his men for overseas. He arrived safely in France but died of broncho-pneumonia October 30, 1918.



HENRY MORRELL ATKINSON, JR.

Captain, United States Coast Artillery Corps.

Born on February 23, 1892.

Received an A. B. degree at Harvard University.

Entered the Institute in 1913 and attended until 1917.

Studied in the Course in Electrical Engineering.

He reported at the First Plattsburg training camp, in May, 1917. He was recommended for commission in the Regular Army and accepted, declining a higher rank in the Officers' Reserve Corps. He was commissioned provisional second lieutenant, attached to the 30th Infantry, at Syracuse, on August 29, 1917. Later his regiment was ordered to Camp Greene, N. C., and after a month's service there, he was sent to Fortress Monroe, Va., to attend the Artillery School. He was promoted to a first lieutenant and in July, 1918, went overseas. While ill with pneumonia at Angers, France, he received his commission as captain November 2, 1918, but died the same day.



JAMES BARTON CHADWICK.

First Lieutenant, United States Tank Corps.

Born in Waltham, Mass., October 10, 1891.

Prepared at the Waltham High School.

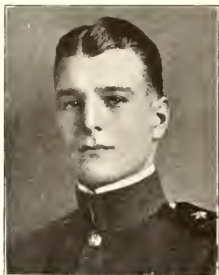
Entered the Institute in 1909.

Graduated in the Course in Mechanical Engineering in 1914.

Member of the chorus of the Tech Show.

He enlisted in the Tank Corps in April, 1918, and was sent to Camp Colt. After serving with several units he was transferred to the Headquarters of the 337th Battalion. Just before sailing for France he was commissioned first lieutenant. He sailed in late October on board the U. S. S. "Leviathan" but while at sea he contracted lobar-pneumonia from which he died November 4, 1918.

TECHNOLOGY'S WAR RECORD



JOSEPH WARREN HOMER, JR.,

Ensign, United States Naval Reserve Force (Aviation).

Born in Roxbury, Mass., April 11, 1897.

Prepared at the Brookline High School and at the Stone School, Boston.

Entered the Institute in 1915 and attended until December, 1916. Studied in the Course in Engineering Administration.

Member of the Sigma Alpha Epsilon fraternity, the Sophomore Crew and Class Football Team, associate editor of *The Tech*.

He entered the United States Naval Reserve on June 26, 1917, and was assigned to the Aviation Detachment at the Institute on August 20. In October he was one of the fifteen men who volunteered to go to England to learn to handle dirigible airships, sailing October 27. In March, 1918, he received his pilot's license and was ordered to the Royal Air Force Station, Polegate, Sussex, for "active duty," and engaged in observation and convoy work over the English Channel. In May, 1918, he was commissioned ensign. After being sent to other stations he returned to London to study the design and construction of airships, but while there he was taken ill with influenza, and died of broncho-pneumonia at the United States Naval Hospital, London, on November 9, 1918.



THOMAS RODMAN PLUMMER.

First Lieutenant, American Red Cross.

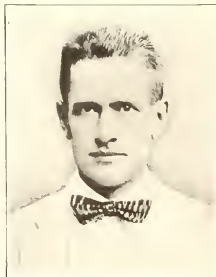
Born in New Bedford, Mass., February 28, 1862.

Prepared at the Friends' Academy, New Bedford, and received an A.B. degree from Harvard University in 1884, and in the summer took a course at the Ecole des Beaux Arts, France.

Entered the Institute in 1884 and attended one year.

Studied in the Course in Architecture.

From 1914-16 he was an attaché of the American Embassy at Paris, where he acted as translator of correspondence and official inspector of German and French military prison camps. In November, 1917, he was commissioned first lieutenant in the American Red Cross, and became director of the Franco-American Mobile Canteen No. 31, at Moyennmontier. He held this position until the armistice, receiving the Croix de Guerre for the valuable services which he rendered. The heavy daily physical strain proved too severe a tax upon his strength, and he died, after three days' illness, at Raon l'Etape, on November 24, 1918.



AUGUST CARL METZ.

Private, United States Medical Corps.

Born in Oshkosh, Wis., May 1, 1889.

Prepared at the Oshkosh High School.

Entered the Institute in 1907.

Graduated in the Course in Mining Engineering in 1911.

Entered the employ of the American Smelting and Refining Company as assistant engineer, and later became superintendent of their Reforma mining unit, Mexico.

He entered the service at Camp Grant in July, 1918, and made application for the Engineer Officers' Training School, but was attached to the 36th Medical Replacement Unit, with which he went overseas in September. He was stationed at Base Hospital No. 8, Savenay, France, where he died of empyema on December 21, 1918, after six weeks' illness.

TECHNOLOGY'S ROLL OF HONOR



GEORGE WELLES ROOT.

Sergeant, United States Tank Corps.

Born in Hartford, Conn., November 21, 1896.

Prepared at the Hartford High School.

Entered the Institute in 1915 and attended until 1917.

Studied in the Course in Chemical Engineering.

Member of the general staff of the *Technology Monthly* and of the Freshman Football Team.

He became a member of the Tech Ambulance Unit, which sailed for France on June 25, 1917. Soon after his arrival he was transferred to the Camion Service with the French Army, and after six months' service returned to the United States. In the spring of 1918 he enlisted in the Heavy Tank Corps, being assigned to Company A, 303d Battalion, and went overseas in August with his unit. Soon after landing, in England he was stricken with influenza followed by pneumonia, and died at Base Hospital No. 40, on the morning of December 25, 1918.



CARL MARTIN WILLIAMS.

Captain, American Red Cross.

Born in Akron, Ohio, March 31, 1884.

Entered the Institute in 1903 and attended one year.

Studied in the Course in Chemical Engineering.

At the time he enrolled for service with the American Red Cross, in April, 1918, he was treasurer and general manager of the Chicago Coated Board Company, and of the Alton Box Board and Paper Company (Alton, Ill.), and secretary of the Piermont Paper Company (Piermont, N. Y.). He arrived overseas on May 17, 1918, and was given charge of the warehouses at Dijon, France. In December he was going to give up the Red Cross work and return to the United States, when he was taken ill with pneumonia and died in an officers' hospital in Paris, on January 23, 1919.



RALPH READ MALCOLM.

Sergeant, United States Field Artillery.

Born on July 14, 1892.

Prepared at the Chauncy Hall School, Boston, Mass.

Entered the Institute in 1911.

Graduated in the Course in Civil Engineering in 1915.

Member of the Civil Engineering Society.

He entered the State militia in New York in 1915 and saw eight months' service on the Mexican border. He was mustered into Federal service in June, 1917, and was stationed at Camp Madison Barracks, N. Y., Camp Wadsworth, S. C., Camp Stewart, Va., and finally Newport News, Va. He sailed overseas with F Battery, 105th Field Artillery, 27th Division, on July 3, 1918. He took part in the St. Mihiel Drive and was then sent to the Saumur Artillery School, where he received a certificate of merit after three months' course and returned to his regiment. He died of pneumonia on March 8, 1919, while returning from France on the U. S. S. "America."

TECHNOLOGY'S WAR RECORD



WILLIAM WRIGHT WALCOTT.

Captain, United States Medical Corps.

Born in Natick, Mass., in 1880.

Prepared at the Newton High School.

Entered the Institute in 1897.

Graduated in the Course in General Science in 1901.

Member of the Sigma Alpha Epsilon fraternity and Walker Club.

Graduated from Harvard University Medical School.

He was on the medical staff of the First Corps of Cadets for ten years and went across with that unit (101st Engineers). In July, 1918, he was wounded and gassed but after a month in hospital returned to his unit. He saw service at Château-Thierry, Chemin des Dames, St. Mihiel and Verdun, having been in the last-named sector six weeks at the signing of the armistice. He was recommended for decoration by the French government in recognition of the valuable service he rendered. He died, in France, of "military tuberculosis" on March 16, 1919.



RICHARD BELMONT CATTON.

Second Lieutenant, Aviation Section, United States Signal Corps.

Born in Honolulu, T. H., July 12, 1890.

Prepared at Oahu College, Honolulu.

Entered the Institute in 1911.

Graduated in the Course in Electrical Engineering in 1915.

Member of Phi Beta Epsilon fraternity and the Swimming Team.

Upon graduation from the Institute he offered his services to the Royal Engineers, but they were not accepted. He attended the Plattsburg officers' training camp in 1917, and in November was commissioned second lieutenant in the Aviation Section of the United States Signal Corps. In June, 1918, he sailed for France, to be employed in the construction of airdromes. In October he had a severe attack of influenza, recovered sufficiently to leave the hospital, but suffered a relapse. An operation for mastoiditis was necessary, and shortly afterward another from which he died at Savenay, France, on April 14, 1919.



EDWARD EVERETT HIGGINS.

Ensign, United States Naval Reserve Force.

Born in Chelsea, Mass., April 4, 1864.

Prepared at the Chelsea High School.

Entered the Institute in 1882.

Graduated in the Course in Electrical Engineering in 1886.

Member of the Theta Xi fraternity.

In April, 1917, he was commissioned as ensign in the United States Naval Reserve Force, for the purpose of organizing the Motor Transport Reserve on the Connecticut Coast, with headquarters in New Haven, Conn. He died on June 29, 1917, at his home in Clinton, Conn., of tonsillitis followed by meningitis.

TECHNOLOGY ROLL OF HONOR



HENRY SOUTHER.

Major, United States Signal Officers' Reserve Corps.

Born in Boston, Mass., September 11, 1865.

Prepared in the Boston public schools.

Entered the Institute in 1883.

Graduated in the Course in Mining Engineering in 1887.

Took post-graduate work in metallurgy in Germany.

He entered the service in 1917 and was commissioned major in the Signal Officers' Reserve Corps, and became assistant chief of the Division of Aviation. He died at Fort Monroe, Va., August 15, 1917, after a surgical operation. Souther Field, Ga., has been named for Major Souther in recognition of his valuable work in the Aircraft Division of the Signal Corps.



JAMES P. CLARKE, Jr.

Captain, United States Corps of Engineers.

Born in Helena, Arkansas, October 31, 1900.

Graduated from the Culver Military Academy (1909), attended West Point for a short time.

Entered the Institute in 1912 and attended until 1913.

Studied in the Course in Electrical Engineering.

Ran third on class team in relay race, Field Day, 1912.

Attended Stanford University, California.

He was commissioned captain in the Arkansas National Guard but because of technical training was transferred for special duty in constructing the water system of Camp Bowie, Texas, which work he had just finished creditably at the time of his death, on October 28, 1917.



FRANCIS PRATT BRECK.

Apprentice Seaman, United States Navy.

Born in Boston, Mass., June 6, 1897.

Prepared at the Moses Brown School, Providence, R. I.

Entered the Institute in 1916 and attended one year.

Studied in the Course in Mechanical Engineering.

Member Freshman Tug-of-War Team.

In September, 1917, he enlisted in the United States Navy but soon afterward contracted measles. Pneumonia developed and on November 6, 1917, he died at the United States Naval Hospital at Newport, R. I.

TECHNOLOGY'S WAR RECORD



JOHN HAMPDEN HOLLIDAY, JR.

First Lieutenant, United States Ordnance Reserve Corps.

Born in Indianapolis, Ind., June 14, 1883.

Prepared at the Indianapolis Manual Training High School.

Entered the Institute in 1901.

Graduated in the Course in Mechanical Engineering in 1905.

Member of the Chi Phi fraternity and of the Class Day Committee.

Received an A. M. degree from Columbia University.

When war was declared by the United States he applied for admission to a training camp but was rejected on account of defective vision. In the fall of 1917 he accepted a position in the Ordnance Reserve Corps, was commissioned a first lieutenant, and assigned to duty in the Gun Division, at Washington, D. C. After a week's illness he died, at the Georgetown University Hospital, D. C., of pneumonia, on December 23, 1917.



FRED ERNEST SCHROEDER.

Private, United States Corps of Engineers.

Born on July 25, 1893.

Prepared at the Fond du Lac High School, Wisconsin, and the Armour Institute, Chicago, Ill.

Entered the Institute in 1916 and attended until 1917.

Studied in the Course in Architecture.

He entered the service in October, 1917, being assigned to the 23d Engineers, at Camp Meade, Md. Shortly afterward, however, he was taken sick and died on January 14, 1918.



RALPH GUNTER WILLIAMS.

Electrician, Third Class (Radio), United States Naval Reserve Force.

Born in Wilkes-Barre, Pa., May 13, 1896.

Prepared at the New Bedford (Mass.) High School.

Entered the Institute in 1915 and attended one year.

Studied in the Course in Electrochemical Engineering.

Held the position of Sergeant and later Color Sergeant of the Technology Regiment.

He enlisted as a third-class electrician (Radio) in May, 1917, and was sent to Newport, R. I. He was transferred to the Naval Radio School at Harvard University and later to the Naval Aviation Detachment at the Institute, where he had completed his ground training when he died, of pneumonia, on January 30, 1918.

TECHNOLOGY'S ROLL OF HONOR



EDWARD SEGUIN COUCH.

Second Lieutenant, United States Infantry.

Born in Dubuque, Iowa, January 24, 1895.

Prepared at the Middletown (Conn.) High School and at the Holbrook School, Ossining, N. Y.

Entered the Institute in 1913 and attended until 1916.

Studied in the Course in Architecture.

Member of the Delta Tau Delta fraternity and of the chorus of the Tech Show.

From the Institute he went to Harvard University for a course in Literature.

On May 7, 1917, he enrolled in the Harvard Reserve Officers' Training Corps. In September he went to Westfield, Mass., with the 1st Maine Heavy Field Artillery. He was honorably discharged November 16 by reason of appointment as provisional second lieutenant in the Regular Army and assigned to the 22d Infantry. He was ordered to Fort Leavenworth, Kansas, where he was assigned to the 5th Provisional Officers' Battalion. On February 5, 1918, he died, because of an error in a prescription given him while in hospital.



FRANKLIN TEMPLE INGRAHAM.

Second Lieutenant, United States Coast Artillery Corps.

Born in Wellesley, Mass., May 23, 1891.

Prepared at the Wellesley High School and was graduated from Harvard in 1914.

Entered the Institute in the fall of 1914 and remained until 1916.

Studied in the Course in Civil Engineering.

When war was declared he took the regular army examination for the Coast Artillery Corps, and when this appointment seemed slow in coming he took the ground-school training for the aviation service. He passed these examinations and was about to go abroad for final training, when the coast artillery appointment was received. Upon advice of his commanding officer, he accepted the commission and applied for transfer to the aviation service but learned that no such transfers were being granted to officers of the Regular Army. He was, however, later appointed an Aerial Observer, and was about to go to the Coast Artillery School when he died at his home on April 11, 1918.



GORDON BAKER GREENOUGH.

Lieutenant, United States Chemical Warfare Service.

Born in Beverly, Mass., June 13, 1892.

Prepared in the public schools of Beverly, Cambridge, and Malden, Mass.

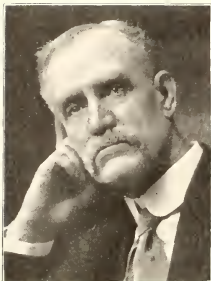
Entered the Institute in 1910.

Graduated in the Course in Chemical Engineering in 1914.

Member of the Chemical Society.

He became a research assistant at the Institute and later went to the Goodyear Tire and Rubber Company, where he distinguished himself in the development of synthetic shoe soles and heels. He entered the Chemical Warfare Service, at Washington, D. C., in the fall of 1917, and in two months received his commission largely as a result of his work in perfecting incendiary bombs. He died of meningitis at the Walter Reed Hospital, Washington, D. C., on May 2, 1918.

TECHNOLOGY'S WAR RECORD



FRANK N. BROWN.

Inspector, Quartermaster Corps.

Born in East Brookfield, Vt., January 22, 1849.

Prepared at the Chauncy Hall School, Boston.

Entered the Institute in 1868 and attended until 1871.

He was Sergeant in the Clafin Guards, at the time of the Boston fire, 1872, and was promoted to captain of that company soon after. He later served on several Massachusetts volunteer militia brigade staffs as signal officer, provost-marshal or engineer officer, and was one of the original officers of the Massachusetts Naval Brigade.

In 1901 he was appointed Inspector in the Quartermaster Corps and served in various parts of the United States and twice in the Philippines. During the war he inspected equipment at Brooklyn, New York, where he died of pneumonia, August 1, 1918.



HAROLD KINDER PATTEN.

Chief Machinist's Mate, United States Navy.

Born in Meriden, Conn., January 15, 1890.

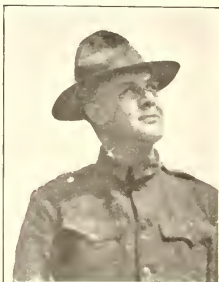
Prepared at the Meriden High School, Tilton (N. H.) Seminary, and Chauncy Hall School, Boston.

Entered the Institute in 1911 and attended until 1913.

Studied in the Course in Mechanical Engineering.

Member of the Wrestling Team.

He enlisted in the United States Navy as Chief Machinist's Mate in July, 1918, applying for a commission. He was summoned to service on September 3 and sent to Pelham Bay, N. Y., where he died at the Naval Hospital, of broncho-pneumonia, on September 15, 1918.



SCOTT PRESCOTT KIMBALL.

Private, United States Infantry.

Born in Salt Lake City, Utah, March 27, 1887.

Prepared in the schools of Paris, and Dresden (Germany) and at the Salt Lake City High School.

Entered the Institute in 1907 and attended until 1910.

Studied in the Course in Electrical Engineering.

Vice-president of the Freshman Class, manager of the Freshman Tug-of-War Team, on the Junior Prom Committee, Osiris.

In May, 1917, he volunteered and was accepted in the first officers' training camp at Madison Barracks, N. Y. Just before entering the service he was married to Miss Frances W. Rolfe, of Schenectady, N. Y. Before completing the course he was honorably discharged from the service and returned to the General Electric Company. On August 30, 1918, he was called for limited service and went to Camp Upton for training. Here he contracted influenza and died on September 28.

TECHNOLOGY'S ROLL OF HONOR



JOHN WETHERELL FRIERY.

Born in Boston, Mass., October 20, 1896.
Prepared at the Mechanic Arts High School.
Entered the Institute in 1914.

Graduated in the Course in Civil Engineering in 1918.
Member of the Civil Engineering Society and the chorus of the Tech Show.

In July, 1918, he passed the examination for provisional second lieutenant in the Regular Army, but it was soon after determined to make no further appointments to the Regular Army. In August, however, appointments were again made, and on October 14, Friery was commissioned a second lieutenant, Corps of Engineers. At this time, however, he was sick with influenza and before he could accept he died, on October 6. His commission was cancelled.



ORIC BATES.

Private, United States Infantry.

Born in Boston, Mass., December 5, 1883.
Entered the Institute in 1903 and attended one year.
Graduated from Harvard University in 1905.

When Professor Burton issued his call for assistants to care for the School for Deck Officers which he was carrying on for the United States Shipping Board, Mr. Bates responded and was later director of the school at the Institute. Feeling that he wished to get into more active service, however, he enlisted and was assigned to Camp Zachary Taylor, where he died of pneumonia on October 8, 1918.



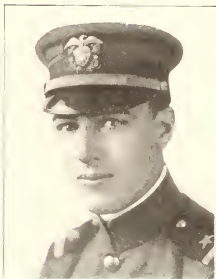
CHARLES DANN WATERBURY.

Captain, United States Quartermaster Corps.

Born in Sandusky, Ohio, July 27, 1868.
Prepared at the Polo (Illinois) High School.
Entered the Institute in 1893 and attended until 1895.
Studied in the Course in Architecture.

In January, 1918, he entered the service, being stationed at Washington, D. C., where on account of his knowledge of architectural engineering he was assigned work in the Engineering Section of the Construction Division of the Army. He was at once made assistant chief of the drafting room. In May, 1918, he was commissioned captain and continued in the Construction Division of the Army as co-chief of the drafting room. He died from bronchial-pneumonia, at the Walter Reed Hospital, Washington, on October 9, 1918.

TECHNOLOGY'S WAR RECORD



WINTHROP FLOYD SMITH.

Ensign, United States Naval Reserve Force (Aviation).

Born in Ashmont, Mass., July 28, 1893.

Prepared at Phillips Exeter Academy and later entered Williams College, where he became a member of the Delta Kappa Epsilon fraternity.

Entered the Institute in 1914 and attended one year.

Studied in the Course in Engineering Administration.

He enlisted in the Navy in May, 1917, and was sent to Newport, R. I. and from there to the Naval Aviation Detachment at the Institute. After completing his ground training he was sent to Key West, Florida, for his instruction in flight and after receiving his commission as ensign was sent to Bay Shore, Long Island, as an instructor. While there he died of pneumonia on October 10, 1918.



PHILLIPS GARRISON MORRISON.

Captain, United States Ordnance Corps.

Born in Merrimac, Mass., March 22, 1894.

Prepared at Phillips Andover Academy.

Entered the Institute in 1912.

Graduated in the Course in Electrical Engineering in 1916.

Member of the Electrical Engineering Society.

He was commissioned a first lieutenant in June, 1917, and went to the Frankford Arsenal, Philadelphia, where he was in charge of power plants and auxiliary shops. In January, 1918, he was advanced to the rank of captain, and shortly afterward was transferred to the Aberdeen Proving Grounds, Maryland, where he was first a proof officer and later assistant to Major Fullam, Chief of the Acceptance Division. The order for his promotion to major had been approved and according to his superior he was about to take charge of the Division when he died of pneumonia at Aberdeen, on October 12, 1918.



ALBERT LESLIE STEPHENS.

Lieutenant, United States Corps of Engineers.

Born in Cambridge, Mass., in 1888.

Prepared at the Cambridge High School.

Entered the Institute in 1902.

Graduated in the Course in Mining Engineering in 1906.

He spent nine years in Mexico as a mining engineer, leaving that country at the time of the Mexican revolution. He then went to South America, settling in Venezuela. At the outbreak of war he returned to the United States and entered the service as a lieutenant in the Corps of Engineers. He died of bronchial-pneumonia at Camp Humphreys, Va., October 12, 1918.

TECHNOLOGY'S ROLL OF HONOR



WILLIAM DAVID STEVENS.

Corporal, United States Ordnance Corps.

Born in Ishpeming, Mich., December 18, 1888.

Prepared at the Chauncy Hall School, Boston.

Entered the Institute in 1909 and attended until 1911.

Studied in the Course in Mechanical Engineering.

Member of the Massachusetts Institute of Technology Orchestra.

Received his B. S. degree from the Michigan College of Mines.

At the outbreak of war he was engaged in important work for the Bethlehem Steel Company and consequently was twice exempted from the draft. Becoming dissatisfied, however, with civilian service, he resigned and enlisted in the Ordnance Corps as a private in June, 1918. He soon became a corporal, and was sent to Aberdeen Proving Grounds, Md., where he acted as draftsman for the Range Firing Section. He was taking care of influenza patients when he was himself taken ill, and died of pneumonia on October 13.



JOHN BEACH GREEN.

Private, Students' Army Training Corps.

Born in Ashtabula, Ohio, February 2, 1898.

Prepared at the Ashtabula High School.

Entered the Institute in 1917 and studied in the Course in Chemistry.

On September 31 he became a member of the Students' Army Training Corps at the Institute. He died at the Boston City Hospital, of pneumonia, on October 14, 1918.



THEODORE HERVEY GUETHING.

First Lieutenant, United States Ordnance Corps.

Born in Winchester, Mass., October 15, 1891.

Prepared at Phillips Exeter Academy, Exeter, N. H.

Entered the Institute in 1910.

Graduated in the Course in Mechanical Engineering in 1915.

Captain of Class Relay Team, temporary captain of Track Team; won "T" in meet with Harvard; junior member of Advisory Council; vice-president of Athletic Association; member of Institute Committee; president Athletic Association; captain of Track Team; editorial staff of *Technology Monthly*.

When war was declared he volunteered for overseas service, but on account of defective vision was rejected. Nevertheless he obtained a commission in the Ordnance Corps on July 10, 1917. He reported for duty on November 4, 1917, and was stationed at the Picatinny Arsenal, Dover, N. J., where he died of pneumonia on October 15, 1918.

TECHNOLOGY'S WAR RECORD



JAMES PHILIP UHLINGER.

United States Quartermaster Corps.

Born in Johnstown, N. Y., May 30, 1893.

Prepared at the Johnstown High School.

Entered the Institute in 1912.

Graduated in the Course in Architecture in 1916.

Member of the Phi Kappa Sigma fraternity, manager of the Freshman Relay Team, Architectural Engineering Society, Civil Engineering Society, Glee Club, Technique Electoral Committee, Finance Committee, Blanket Tax Committee, Technique Treasurer, Class Day Committee, Osiris.

He entered service in July, 1917, and was sent to Camp Dix, N. J., but was discharged on account of a slight defect in vision. He became a government construction engineer at Lake Charles, La., and Kelly Field, Texas, but was drafted and sent to Camp Dix. Being again unable to pass the test, he was assigned special service as a draughtsman at Camp Meade, Md., where he died of pneumonia on October 16, 1918.



HAROLD JOSEPH TIERNEY.

Second Lieutenant, Aviation Section, United States Signal Corps.

Born in Roxbury, Mass., September 25, 1896.

Prepared at the Mechanic Arts High School, Boston.

Entered the Institute in 1913.

Graduated in the Course in Electrical Engineering in 1917.

Entered the Aviation Section of the United States Signal Corps and was sent to Camp Vail, N. J., as a sergeant in April, 1918. In October he became second lieutenant of the 29th Service Company, 122d Aero Squadron. He died of pneumonia at Camp Vail Hospital, on October 22, 1918.



ERVAY BRONAUGH ERVAY.

Second Lieutenant, United States Infantry.

Born in Colorado Springs, Colo., October 13, 1893.

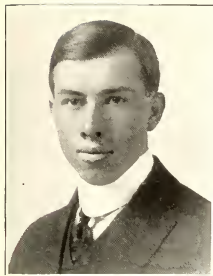
Prepared at the High School at San Diego, Calif., and the Virginia Military Academy, Lexington, Va.

Entered the Institute in 1912 and attended until 1914.

Studied in the Course in Architecture.

Entered the service in June, 1917, joining the 21st Infantry, Regular Army. In July he took examinations for commission, at Fort Rosecrans, Calif., and in November was ordered to Fort Leavenworth, Kan., to the Army Service Schools. In February, 1918, he received his commission and was reassigned to the 21st Infantry, stationed at Balboa Park, Calif. Later he was sent to Washington, D. C., on detached service, where he died on November 1, 1918, of influenza.

TECHNOLOGY'S ROLL OF HONOR



HALMIER CARLETON CHIDSEY.

Private, United States Coast Artillery Corps.

Born in Windsor, Conn., in 1887.

Prepared at the Windsor High School.

Entered the Institute in 1916 and attended until 1918.

Studied in the Course in Sanitary Engineering.

Entered the service in October, 1918, and was sent to Fortress Monroe, Va., where he died, of pneumonia, on November 3.



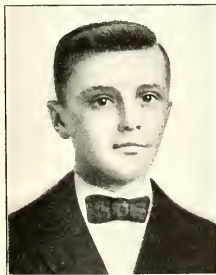
ALBERT INGRAM PAINE.

Private, Students' Army Training Corps.

Born in North Adams, Mass., August 14, 1899.

Prepared at the New Bedford High School.

He entered the Institute in 1918, as a member of the Students' Army Training Corps. He died of pneumonia at the Boston City Hospital on November 3, 1918.



ROLAND BABSON GRIFFIN.

Private, Students' Army Training Corps.

Born in Gloucester, Mass., June 8, 1900.

Prepared at the Gloucester High School.

Entered the Institute in February, 1918, and in the fall of 1918 became a member of the Students' Army Training Corps at the Institute. He died at the Students' Army Training Corps Infirmary, of pneumonia, on November 13, 1918.

TECHNOLOGY'S WAR RECORD



HOWARD MARTIN COOK, JR.

Apprentice Seaman, Students' Navy Training Corps.

Born in Montclair, N. J., January 10, 1900.

Prepared at the Montclair High School.

Entered the Institute in 1918, registering in the Course in Naval Architecture and Marine Engineering.

He became a member of the Students' Navy Training Corps at the Institute. He died of pneumonia at the United States Naval Hospital, Chelsea, Mass., on December 17, 1918.



DONALD WOODWORTH CURRY.

Apprentice Seaman, Students' Navy Training Corps.

Born in Newton Highlands, Mass., July 22, 1900.

Prepared at the Newton High School.

Entered the Institute in 1917, taking the Course in Naval Architecture and Marine Engineering.

Member of the Phi Beta Epsilon fraternity and of the Glee Club.

In the fall of 1918 he became a member of the Students' Navy Training Corps at the Institute. He died of bronchial-pneumonia at the United States Naval Hospital, Chelsea, Mass., December 17, 1918.



GRANDVILLE REYNARD JONES.

Captain, United States Sanitary Corps.

Born in Camden, Ohio, November 26, 1883.

Prepared at the Camden High School and received a C. E. degree from the Ohio State University in 1904.

Entered the Institute in 1904.

Graduated in the Course in Sanitary Engineering in 1907.

Member of the Lambda Chi fraternity.

At the time of his enlistment he was associate professor of Sanitary Engineering at Johns Hopkins University, Baltimore, Md. He was commissioned a captain in the Sanitary Corps on November 9, 1918 and ordered to Camp Greenleaf, Georgia, for a brief period of training, at the end of which he became camp sanitary engineer at Camp Benning, Columbus, Ga., where he died on December 22, of pneumonia.

TECHNOLOGY'S ROLL OF HONOR



RALPH TUPPER ROGERS.

Chief Quartermaster, United States Naval Reserve Force (Aviation).

Born in Cambridge, Mass., October 9, 1893.

Prepared at the Medford, (Mass.) High School.

Entered the Institute in 1914 and attended until 1917.

Studied in the Course in Electrical Engineering.

Entered the service in May, 1918, enlisting in the Naval Aviation Detachment at the Institute. After finishing his three months' course he went to Miami, Florida, and later to Pensacola, for instruction in flying. He had passed his final examinations and was about to receive his commission as ensign, when he died of pneumonia, at Pensacola, on January 8, 1919.



LEON HUBERT WEBBER.

Lieutenant (Junior Grade), United States Naval Reserve Force.

Born in North Brookfield, Mass., October 13, 1891.

Attended the Worcester Polytechnic Institute for three years.

Entered the Institute in 1910.

Graduated in the Course in Electrical Engineering in 1914 and received an M. S. degree in 1915.

He entered the service in December, 1917, and was commissioned an ensign, United States Naval Reserve Force, and ordered to duty as assistant to the Naval Inspector of Ordnance, Southeastern District, Raleigh, N. C. Later, succeeding this officer, he moved offices to Birmingham, Ala., and in August, 1918, he was promoted to lieutenant (junior grade). His duties were inspection and shipment of naval ordnance, projectiles and miscellaneous supplies manufactured by contractors for the Government in the territory south of Virginia to the Gulf and from the coast to the Mississippi. He died of pneumonia, in Birmingham, Ala., on January 13, 1919.



ELMER FORREST THYNG.

Second Lieutenant, United States Field Artillery.

Born in Everett, Mass., May 15, 1893.

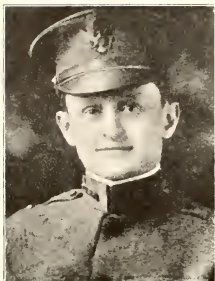
Attended Dartmouth College one year before coming to the Institute.

Entered the Institute in 1912 and attended until 1913.

Followed special studies.

He entered an artillery school in Alabama in 1917 and went overseas and was attached to Headquarters of the First Corps, in January, 1918. He returned to United States in October with dispatches. He was sent to Camp Meade, Md., and discharged from Fort Sill, Okla., in December. He died of pneumonia at Youngstown, Ohio, on January 16, 1919.

TECHNOLOGY'S WAR RECORD



STUART THOMSON.

Captain, United States Ordnance Corps.

Born in Lynn, Mass., August 13, 1886.

Prepared at the Volkman School, Boston, and was graduated from Harvard University, with highest honors, in 1908.

Member of Phi Beta Kappa fraternity.

Entered the Institute in the fall of 1908 and attended for one year.

Studied in the Course in Chemical Engineering.

During the early months of the war he worked as a civilian on many war problems for the General Electric Company. He was loaned to the Bureau of Mines, and finally received a commission as first lieutenant, Chemical Warfare Service, on November 27, 1917. He was transferred to the Aircraft Armament Section of the Ordnance Department, working on the design and production of "drop bombs." In October, 1918, he was promoted to the rank of captain, and retained in service until March 1, 1919. His strenuous devotion to duty so sapped his vitality that he became an easy victim to pneumonia, from which he died on March 23, 1919, at his home in Brookline, Mass.



ORTON WHEELOCK ALBEE.

Lieutenant-Colonel, United States Ordnance Corps.

Born in Charleston, S. C., November 21, 1872.

Prepared at the Marlboro (Mass.) High School.

Entered the Institute in 1893.

Graduated in the Course in Mining Engineering in 1893.

He was commissioned major in the Ordnance Reserve Corps and called into active service in September, 1917, as traveling supervisor of the Inspection Division to organize inspection forces at plants throughout the United States and Canada. On March 15, 1918, he was appointed, inspection manager of the Toronto District, which included all Canada, and had entire charge of the production, inspection and supply of more than three hundred munition plants. On October 8 he was promoted to lieutenant-colonel. Later he was made Canadian Contract Assessor and Salvage Officer and Chief of the Toronto District, which position he held at the time of his death. He died at his home in Marlboro, Mass., after an operation, August 4, 1919.



WOODRUFF LEEMING.

Lieutenant Colonel, United States Quartermaster Corps.

Born in Quincy, Ill., July 14, 1870.

Prepared at the Adelphi Academy, Brooklyn, N. Y.

Entered the Institute in 1887.

Graduated in the Course in Architecture in 1891.

Member of Phi Gamma Delta fraternity.

He attended the Plattsburg training camp in 1916 and became a major in the Officers' Reserve Corps. He was the Constructing Quartermaster of Camp Cole, Gettysburg, and sailed for France in command of the 401st Motor Supply Train. He was there transferred to the Service of Rents, Requisitions and Claims and for a year was chief renting officer of the American Expeditionary Forces, laying out the Le Mans area for billeting one million soldiers awaiting transportation. In January, 1919, he became a member of the Board of War Damages for the allied countries. In February he was ordered to Rome to assist the Italian government along the same line. He returned home in May, much broken in health, due to his arduous work, and died on November 20, 1919. He was subsequently appointed a member of the French Academy.

TECHNOLOGY'S ROLL OF HONOR



CHESTER COOK FORD.

Second Lieutenant, United States Air Service.

Born in Boston, Mass., November 21, 1884.

Prepared at the Mechanic Arts High School.

Entered the Institute in 1907 and attended until 1909.

Studied in the Course in Architecture.

In August, 1917, he worked as civilian employee at Camp Meade, Maryland, and from there went to the second officers' training camp at Plattsburg. He later went to Washington, where he had charge of work in connection with the design of the American Ordnance Base in France. In November he was commissioned in the Aviation Section United States Signal Corps and served at various flying fields. In September, 1918, he was sent to Langley Field, Virginia. While serving as officer of the day he contracted a heavy cold which resulted in his death, from pneumonia, on February 12, 1920.



CHARLES ROBERT CROSS, JR.

American Red Cross.

Born in Roxbury, Mass., June 17, 1881.

Prepared at Noble and Greenough's School, Boston.

Entered the Institute in 1898 and remained one year.

Studied in the Course in Electrical Engineering.

Entered Harvard University and was graduated in 1903.

Received the degree of LL.B. from Harvard Law School in 1906.

Spent the year 1906-07 at the Institute, taking work in General Science.

In January, 1915, he entered the American Ambulance Service at Dunkirk, France, and later joined the American Distributing Service. He served in Serbia and Montenegro as executive assistant to Doctor Richard P. Strong, of the American Red Cross Sanitary Commission and on his return to France was again with the American Distributing Service. He was injured in a motor accident near Ploubalay, France, on October 4, 1915, and died on the eighth in the hospital at Dinard. The Geographic Board of Canada has named one of the peaks of the Canadian Rockies Mount Cross in recognition of his explorations in that section of the country.



ROYAL ROBBINS HEUTER.

Lieutenant, United States Officers' Reserve Corps.

Born in Waltham, Mass., June 8, 1883.

Prepared at the Waltham High School.

Entered the Institute in 1902.

Graduated in the Course in Mechanical Engineering in 1906.

Member of the Mechanical Engineering Society.

For three years after graduation he was assistant in the Mechanical Engineering Department and spent the following two years at the Technische Hochschule, at Charlottenberg, where he completed the work required for the degree of doctor of Engineering. He then returned to the Institute as an instructor but left after a year and a half to join the Associated Factory Mutual Fire Insurance Companies, where he was employed at the time of his death. On November 6, 1916, he became a member of the Officers' Reserve Corps. While returning to his office in Boston, just prior to leaving for the Plattsburg camp, where he had been ordered as a lieutenant, he was killed in an automobile accident, May 5, 1917.

TECHNOLOGY'S WAR RECORD



MORTON EDDY COBB.

Captain, Quartermaster Division, United States Officers' Reserve Corps.

Born in Newton Centre, Mass., December 5, 1865.

Entered the Institute in 1885 and attended until 1887.

Studied in the Course in Mechanical Engineering.

He enlisted in Troop A, 1st Squadron of Massachusetts Cavalry in 1895 and was later appointed on the staff of the 2d Brigade, serving under Generals W. A. Bancroft, J. H. Whitney and W. A. Pew, his last assignment being that of Adjutant General of the 2d Brigade. He was retired in 1913 with the rank of lieutenant-colonel. In the summer of 1917 he accepted a position in the Quartermaster Division, Officers' Reserve Corps, United States Army, with the rank of captain. On the evening of August 16, 1917, he was wounded by the accidental discharge of a revolver he was exhibiting to a friend and died on the following day.



WILLIAM EASTMAN, JR.

Private, First Class, Aviation Section, United States Signal Corps.

Born in Chicago, Ill., May 23, 1895.

Prepared at the Evanston Township High School.

Entered the Institute in 1912 and attended until 1917.

Tutored in the Boy's Travel School 1914-1915.

Studied in the Course in Mechanical Engineering.

Member of the Phi Kappa Sigma fraternity, ballet of the Tech Show, Army Committee, Mechanical Engineering Society, Theta Tau, Inter-Fraternity Council, Institute Committee, Walker Club, Osiris.

In 1917 he entered the service and was assigned as an instructor in the United States Army School of Military Aeronautics at the Institute. On November 2, he was severely injured by falling into the propeller of an engine, and died six days later.



JOHN GEORGE KELLY, JR.

First Lieutenant, United States Corps of Engineers.

Born in Grant's Pass, Oregon, in 1889.

Prepared in the Eugene public schools and later attended the University of Oregon and the Oregon Agricultural College.

Entered the Institute in 1912.

Graduated in the Course in Civil Engineering in 1914.

Member of the Sigma Chi fraternity, Wrestling Team in 1912, captain of Wrestling Team in 1913.

In the spring of 1917 he entered the First Officers' Training Camp at Presidio, Calif., and received a commission as first lieutenant. For a time he did recruiting duty at Portland, Ore., and was then sent to Fort Riley, Kan. In June, 1917, he went overseas with the 10th Engineers, and was killed on March 15, 1918, in an automobile accident in France.

TECHNOLOGY'S ROLL OF HONOR



NEWELL WILLARD ROGERS.

Cadet, Aviation Section, United States Signal Corps

Born in New York City, June 18, 1895.

Prepared at the South Orange (New Jersey) High School.

Entered the Institute in 1911 and attended until 1912.

Studied in the Course in Electrical Engineering.

Member of the Delta Upsilon fraternity.

He enlisted in the spring of 1918 in the Aviation Section of the United States Signal Corps and was assigned to Chanute Field, Rantoul, Ill., for training. On August 1, 1918, while riding a motor cycle across the field he was run down by an airplane and killed.



ERALBERT TALMADGE MILLER.

Lieutenant, United States Air Service.

Born in Columbus, Ga., December 11, 1889.

Prepared at the Columbus High School and in 1913 received a Master's degree from the University of Georgia, from which he was graduated in 1910.

Entered the Institute in 1913.

Graduated in the Course in Civil Engineering in 1914.

Member of the Sigma Chi fraternity.

In November, 1917, he entered the Aviation Training School at San Antonio, Texas, and was later transferred to the Georgia School of Technology, at Atlanta, to complete his course in Aviation Mechanics. He received a commission as lieutenant, and was sent to Arcadia, Fla. While acting as chief instructor of aviation mechanics at St. Paul, Minn., he was killed in a motor-car accident on the evening of October 13, 1918. On that day recommendations had been forwarded to Washington for his promotion.



PAUL DESNOYERS PELTIER.

Second Lieutenant, United States Sanitary Corps.

Born in Hartford, Conn., March 12, 1897.

Prepared at the Berkeley School, N. Y.

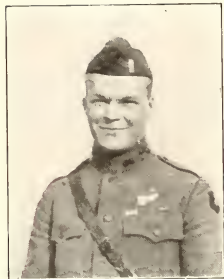
Entered the Institute in 1915 and attended until January, 1918.

Studied in the Course in Biology and Public Health.

Member of the Sigma Chi fraternity, Freshman and Sophomore Tug-of-War Team, Tech Show, Technique Electoral Committee; awarded "sTr" for work on Swimming Team.

In March, 1918, he enlisted in the Sanitary Corps, U. S. A., and studied at the Army Medical School in Washington, D. C., the Rockefeller Institute, New York, and the United States Medical Laboratory, at Yale University, and in October received his commission. He asked for and received his discharge from service in January, 1919, in order to accept a position as bacteriologist with the American Commission for Relief in the Near East. The expedition sailed from New York on February 16. On April 1, 1919, he died at Eski-Shehir as the result of injuries received while boarding a train at Mayund, Asia Minor.

CHAPTER IV
DECORATIONS AND CITATIONS



RALPH B. BAGBY, '16.

First Lieutenant, United States Field Artillery.

DISTINGUISHED SERVICE CROSS

G. O. 37, Extract: "Ralph B. Bagby, First Lieutenant, Field Artillery, Observer, 88th Aero Squadron. For extraordinary heroism in action near Tailly, France, November 2, 1918. Lieutenant Bagby, with First Lieutenant Louis G. Bernheimer, pilot, on their own initiative went on a reconnaissance mission, flying fifty kilometers behind the German lines, securing valuable information as to the condition of the bridges across the Meuse River and enemy activity in the back areas, and also harassing enemy troops."

Lieutenant Bagby has also received seven citations for valor, the Croix de Guerre with Palm (French) and is a Chevalier of the Order of the Crown (Belgian).



DOUGLAS B. BAKER, '15.

Captain, United States Infantry.

DISTINGUISHED SERVICE CROSS

G. O. 32, Extract: "Douglas B. Baker, First Lieutenant, 30th Infantry. For extraordinary heroism in action near Bois de Beuge and Bois de la Pultière, October 9-15, 1918. During the period October 9-15, 1918, he made frequent trips through heavy shell, gas and machine-gun fire to repair broken telephone and telegraph wires, and when they could not longer be repaired he personally carried messages through the shell-swept area. On October 15 he personally reconnoitered the Bois de la Pultière under heavy machine-gun and shell fire in an endeavor to find a suitable location for his regimental post of command."

Lieutenant Baker also received an Army Citation and the Croix de Guerre with Palm (French)

DECORATIONS AND CITATIONS



HERBERT W. BARRETT, '19.

Second Lieutenant, United States Infantry.

DISTINGUISHED SERVICE CROSS

Citation: "For extraordinary heroism in action near Blanc Mont, France, October 3, 1918. Reorganizing his company after the other officers had become casualties, Lieutenant Barrett led them in an attack, capturing a machine-gun nest, capturing or killing the crew. Under heavy fire he rescued two of his men who had been wounded and buried by a high explosive shell. He was wounded while administering first aid to one of his men under machine-gun fire."



HAROLD BLANCHARD, '02.

Lieutenant-Colonel, United States Infantry.

DISTINGUISHED SERVICE CROSS

G. O. 37, Extract: "Harold Blanchard, Major, 327th Infantry. For extraordinary heroism in action during the Meuse-Argonne offensive, October 7-21, 1918. During fourteen days of severe fighting he was constantly on duty with his battalion, although suffering severely from bronchitis, the result of being gassed. He personally took command of a company, after all the officers had become casualties, and led them through a heavy artillery barrage and machine-gun fire, gaining his objective. Immediately after his battalion was relieved he collapsed from the severe strain."

Major Blanchard also received the Croix de Guerre with Palm (French) and is a Chevalier of the Legion of Honor.



ARTHUR R. BROOKS, '17.

Captain, United States Air Service.

DISTINGUISHED SERVICE CROSS

G. O. 123, Extract: "Arthur R. Brooks, Second Lieutenant, Air Service. For extraordinary heroism in action over Mars-la-Tour, France, September 14, 1918. When his patrol was attacked by twelve enemy Fokkers over Mars-la-Tour, eight miles within the enemy lines, he alone fought bravely and relentlessly with eight of them, pursuing the fight from five thousand meters to within a few meters of the ground and, though his right rudder control was out and his plane riddled with bullets, he destroyed two Fokkers, one falling out of control and the other bursting into flames."

TECHNOLOGY'S WAR RECORD



EDWARD P. BROOKS, '17.

First Lieutenant, United States Corps of Engineers.

DISTINGUISHED SERVICE CROSS

G. O. 78, Extract: "Edward P. Brooks, First Lieutenant, 1st Engineers. For extraordinary heroism in action at Pont-Mangis, France, November 7, 1918. Exposing himself to intense machine-gun and artillery fire, Lieutenant Brooks personally reconnoitered the ground over which an attack was to be made. He then skillfully led his men in a successful attack on the village, which was defended by machine guns and a seventy-seven millimeter gun firing on the advancing troops. Lieutenant Brooks coolly led his platoon in the face of this fire until they were near enough to put the enemy gunners to rout by rifle fire."



DWIGHT DICKINSON, JR., '08.

Captain, United States Naval Reserve Force.

DISTINGUISHED SERVICE CROSS

G. O. 46, Extract: "Dwight Dickinson, Jr., Past Assistant Surgeon, United States Navy, attached to 2d Battalion, 5th Regiment, United States Marine Corps. For extraordinary heroism in action near St. Etienne, France, October 4, 1918. Under terrific shell and machine-gun fire, he attended the wounded with utter disregard for his own safety. When a shell struck the dressing station which he had established in an advanced zone, he rushed to the assistance of the wounded and through his devotion to duty many lives were saved."

Captain Dickinson also received a Divisional Citation and the Croix de Guerre with Palm (French).



LOGAN FELAND, '92.

Brigadier-General, United States Marine Corps.

DISTINGUISHED SERVICE CROSS

G. O. 90, Extract: "Logan Feland, Colonel, United States Marine Corps. During the operations at Bois de Belleau, June 6-14, 1918, he distinguished himself by his energy, courage and disregard for personal safety in voluntarily leading troops into action through heavy artillery and machine-gun fire. His efforts contributed largely to our success at this point."

Brigadier-General Feland also received the Distinguished Service Medal, Croix de Guerre with six Citations (French) and is an Officer of the Legion of Honor.

DECORATIONS AND CITATIONS

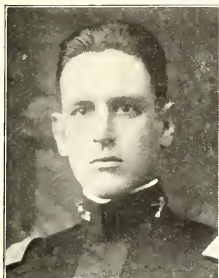


HERBERT W. HALL, '12.

Captain, United States Coast Artillery Corps.

DISTINGUISHED SERVICE CROSS

G. O. 15, Extract: "Herbert W. Hall, First Lieutenant, 44th Artillery, Coast Artillery Corps. For extraordinary heroism in action near Thiaucourt, France, September 27, 1918. He was in charge of a trainload of ammunition being sent to two eight-inch howitzer batteries in active operation against the enemy. Finding that part of the light railway track had been destroyed by enemy shell fire, he secured a detail of men under an Engineer officer and worked with them to repair the track. When the Engineer officer was killed by an exploding shell, he assumed full charge and continued the work under heavy shell fire, showing utter disregard for personal danger and inspiring confidence in his men by his calmness, decision and courage."



JAMES HILL HOLMES, JR., '18.

Deceased, Captain, United States Infantry.

DISTINGUISHED SERVICE CROSS, POSTHUMOUS

G. O. 132, Extract: "James H. Holmes, Jr., Captain, 26th Infantry. After having bravely led his company in three attacks in two days near Soissons, France, July 18-19, 1918, he was killed in a fourth attack while charging an enemy machine gun."

Captain Holmes also received the Croix de Guerre.



COLIN B. JOE, '23.

Sergeant, United States Infantry.

DISTINGUISHED SERVICE CROSS

Certificate No. 4866: "Colin B. Joe, Sergeant, Company K, 23d Infantry, Argonne offensive, November 1-5, 1918. With complete disregard of his own danger, he went forward alone, when the advance was held up by two machine-gun nests, and single-handedly reduced these positions, capturing nine prisoners. Later, single-handedly, he attacked the crews of three machine guns, being severely wounded in this action."

Sergeant Joe also received the Croix de Guerre with Silver Star (French).

TECHNOLOGY'S WAR RECORD



GEORGE C. KENNEY, '11.

Captain, United States Air Service.

DISTINGUISHED SERVICE CROSS

G. O. 13, Extract: "George C. Kenney, First Lieutenant, Air Service, Pilot, 91st Aero Squadron. For extraordinary heroism in action near Jametz, France, October 9, 1918. This officer gave proof of his bravery and devotion to duty when he was attacked by a superior number of aircraft. He accepted combat, destroyed one plane and drove the others off. Notwithstanding that the enemy returned and attacked again in strong numbers, he continued his mission and enabled his observer to secure information of great military value."

Captain Kenney also received an Army Citation for Valor.

(Photograph by Marceau, Boston.)



JOHN H. LEAVELL, '07.

Major, United States Corps of Engineers.

DISTINGUISHED SERVICE CROSS

G. O. 37, Extract: "John H. Leavell, Captain, Company F, 316th Engineers. For extraordinary heroism in action at Audenarde, Belgium, November 1, 1918. He led a patrol of four men on a reconnaissance of the city of Audenarde at a time when it was still occupied by enemy patrols and snipers, obtaining important data on destroyed bridges and location of materials necessary in repairing them. While on this errand Captain Leavell and his men encountered a German patrol three times their number, and in the combat which followed several of the enemy were killed or wounded and a spy was captured."

Major Leavell also received the Croix de Guerre with Gold Star (French).



NORMAN D. MACLEOD, '14.

Major, United States Field Artillery.

DISTINGUISHED SERVICE CROSS

G. O. 138, Extract: "Norman D. MacLeod, Captain, 103d Field Artillery. For extraordinary heroism in action at Marcheville, France, September 26, 1918. While acting as Artillery Liaison Officer he displayed remarkable courage and judgment under terrific artillery and machine-gun fire. In addition to his duties as liaison officer he volunteered and took personal command of a detachment of infantrymen who were without officers, and by his personal bravery and resourcefulness successfully withstood a violent counter-attack by the enemy."

Major MacLeod also received the Croix de Guerre with Palm (French).

DECORATIONS AND CITATIONS



LANSING McVICKAR, '18.

First Lieutenant, United States Field Artillery.

DISTINGUISHED SERVICE CROSS

G. O. 44, Extract: "Lansing McVickar, First Lieutenant, 1st Battalion Headquarters, 7th Field Artillery. For extraordinary heroism in action near Vercy, France, October 4, 1918. Lieutenant McVickar volunteered and took forward a gun to the aid of the Infantry under the most hazardous circumstances. Despite the loss of two horses and the wounding of several of his men, he continued until he encountered an enemy barrage, from which it was necessary to take cover. He exposed himself to the barrage on five different occasions to bring in wounded men."

Lieutenant McVickar also received a Divisional Citation for Valor.

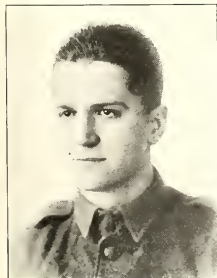


FRED DUNLAP MENDENHALL, '14.

First Lieutenant, United States Corps of Engineers.

DISTINGUISHED SERVICE CROSS

G. O. 37, Extract: "Fred D. Mendenhall, First Lieutenant, 7th Engineers. For extraordinary heroism in action near Cunel, France, October 20, 1918. Although his platoon was constantly under heavy shell and machine-gun fire, he courageously directed the wiring of an extreme northern outpost line of Infantry. On the night of November 10, 1918, he skillfully directed the construction of a pontoon bridge over the Loison River. So close to the enemy was his platoon that it was necessary to lash the bridge together, because the hammering of the nails would have drawn instant machine-gun fire from the enemy."



KENNETH BAUSMAN PAGE, '20.

First-Class Private, United States Medical Corps.

DISTINGUISHED SERVICE CROSS

G. O. 99, Extract: "Kenneth B. Page, Private First-Class, Medical Department, 104th Infantry. He displayed conspicuous gallantry during the action of April 10, 1918, in running through heavily shelled area to rescue an officer who had fallen mortally wounded, and at great personal risk carrying him to dressing station."

Private Page also received the Croix de Guerre with Gold Star (French).

TECHNOLOGY'S WAR RECORD



KARL C. PAYNE, '19.

First Lieutenant, United States Air Service.

DISTINGUISHED SERVICE CROSS

G. O. 123, Extract: "Karl C. Payne, First Lieutenant, 20th Aero Squadron, Air Service. For extraordinary heroism in action near Longuyon, France, September 16, 1918. Starting on a very important daylight bombing mission with five other planes, as observer he went alone when the other five planes were forced to turn back. On crossing the German line, he was attacked by three enemy planes. Using his guns to keep the enemy at bay, he went on, reached his objective, and dropped his bombs on the railroad junction, cutting the line. On the way back four more planes joined in the attack, but, keeping them at bay with his guns, he reached the Allied lines."



PERCY A. RIDEOUT, '11. (Deceased.)

First Lieutenant, United States Corps of Engineers.

DISTINGUISHED SERVICE CROSS, POSTHUMOUS

G. O. 142, Extract: "Percy A. Rideout, First Lieutenant, 1st Gas Regiment. For extraordinary heroism in action at Cierges, France, October 4, 1918. He made an extended reconnaissance in advance of his outposts, fearlessly exposed himself to enemy machine-gun fire, and was several times knocked down by exploding shells. The information he secured was valuable to the Infantry, giving them knowledge of the exact location of machine-gun nests. During the action this officer directed the laying of the smoke barrage from an exposed position, remaining at his station throughout the operation, in spite of severe shell and machine-gun fire, and continuing to display the highest courage until he was killed by shell fire."



TOM W. SAUL, '10.

Captain, United States Tank Corps.

DISTINGUISHED SERVICE CROSS

G. O. 46, Extract: "Tom W. Saul, First Lieutenant, Tank Corps. For extraordinary heroism in action near the Bois de Remières, France, September 12, 1918. He coolly exposed himself to enemy fire by standing on the parapet of a trench and directing his men in the work of getting the tanks forward."

DECORATIONS AND CITATIONS



JAMES E. WALLIS, JR., '17.

Captain, United States Coast Artillery Corps.

DISTINGUISHED SERVICE CROSS

G. O. 87, Extract: "James E. Wallis, Jr., Captain, Coast Artillery Corps, Observer, 1st Army Observation Group. For extraordinary heroism in action in the region of Metz, France, September 13, 1918. While on a reconnaissance under the most adverse weather conditions, which necessitated flying at an extremely low altitude, he, with his pilot, penetrated the enemy's territory to a depth of twenty-five kilometers. Attacked by five enemy planes they destroyed one and forced the others to retire. In heavy fire from the ground they continued on their mission until it was completed."

Captain Wallis also received an Army Citation for Valor.



DONALD D. WARNER, '18.

First Lieutenant, United States Air Service.

DISTINGUISHED SERVICE CROSS

G. O. 121, Extract: "Donald D. Warner, First Lieutenant, 96th Aero Squadron, Air Service. For extraordinary heroism in action on September 4, 1918. While on a bombing expedition with other planes from his squadron he engaged in a running fight over hostile territory with a superior number of enemy battle planes, from Friaucville to Lamorville, France. During the combat he was severely wounded, his right thigh being badly shattered. In spite of his injuries he continued to operate his machine gun until the hostile formation had been driven off and one plane shot down, burning."



EDGAR S. GORRELL, '17.

Colonel, United States Air Service.

DISTINGUISHED SERVICE ORDER (BRITISH)

H. O. List 40: "By command of His Majesty the King for bravery and distinguished service in the campaign."

Colonel Gorrell also received the Distinguished Service Medal and is a Chevalier of the Legion of Honor.

(*Photograph by Harris & Ewing.*)

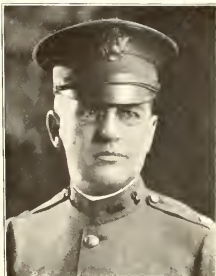
TECHNOLOGY'S WAR RECORD



D. M. JEMMETT, '19.
Lieutenant, Canadian Engineers.

DISTINGUISHED CONDUCT MEDAL (BRITISH)

Gazette, June 26, 1916, Extract: "Awarded the Distinguished Conduct Medal: 5324, Sergeant D. M. Jemmett, 1st Field Company, 1st Canadian Divisional Engineers. For conspicuous gallantry and devotion to duty throughout the campaign, notably when constructing a bridge under heavy shell fire, and on another occasion, when though wounded, he remained in charge till he had completed his work, and then marched his party back to billets."



HERBERT W. ALDEN, '93.
Lieutenant-Colonel, Ordnance Corps.

DISTINGUISHED SERVICE MEDAL

G. O. 77, Extract: "Lieutenant-Colonel Herbert W. Alden, formerly Lieutenant-Colonel, Ordnance Department, United States Army. For exceptionally meritorious and conspicuous service, first as American Engineering Representative at the conference called to design the Anglo-American Mark VIII tank, and later as being directly responsible for the design of a new, valuable and easily obtained implement of mechanical warfare, the fast three-ton tank, susceptible of production in America in such quantity as to constitute a most material contribution to the effective fighting power of the United States Army."



DWIGHT E. AULTMAN, '95.
Brigadier-General, United States Field Artillery.

DISTINGUISHED SERVICE MEDAL

G. O. 59, Extract: "Dwight E. Aultman, Brigadier-General, United States Army. For exceptionally meritorious and distinguished services. As Chief of Artillery of the 5th Corps in the operations against the enemy in November, 1918, by his exceptional skill as an artilleryist he was largely responsible for the rupture of the enemy's position and the breaking of his resistance."

Brigadier-General Aultman also received the Croix de Guerre with three Palms (French), and is a Commander of the Legion of Honor.
(Photograph by Harris & Ewing.)

DECORATIONS AND CITATIONS



EDWARD CANFIELD JR., '12.

Colonel, United States Coast Artillery Corps.

DISTINGUISHED SERVICE MEDAL

G. O. 35, Extract: "Edward Canfield, Jr., Lieutenant-Colonel, United States Army. For exceptionally meritorious and distinguished services. He served as Assistant Chief of Staff, G-1, of the 4th Division, and organized the entire system of supply for the division. He trained and supervised the personnel and the operation of the administrative sections. He handled all problems connected with supply and transportation with such efficiency and success that the division was never short of either rations or ammunition. He proved himself to be an officer of the greatest administrative ability, exceptional foresight and tireless energy."



BRADLEY DEWEY, '09.

Colonel, United States Chemical Warfare Service.

DISTINGUISHED SERVICE MEDAL

G. O. 47, Extract: "Colonel Bradley Dewey, Chemical Warfare Service, for exceptionally meritorious and conspicuous service as Chief of the Gas Defense Production Division in achieving under most trying circumstances remarkable results in supplying the American Expeditionary Forces with sufficient number of gas masks of high grade and of improved design."



SAMUEL M. FELTON, '73.

Director of Military Railways, United States Army.

DISTINGUISHED SERVICE MEDAL

G. O. 18, Extract: "Mr. S. M. Felton, Director-General of Military Railways, for especially meritorious and conspicuous service in supervising the supply of railway material and the organization of railway operation and construction troops. By his energetic and loyal service he has contributed materially to the success of the Army in the field." Mr. Felton is also a Commander of the Legion of Honor.

TECHNOLOGY'S WAR RECORD



FULTON Q. C. GARDNER, '13.

Colonel, United States General Staff.

DISTINGUISHED SERVICE MEDAL

G. O. 73, Extract: "Colonel Fulton Q. C. Gardner, General Staff, United States Army. For exceptionally meritorious and conspicuous service as Secretary to the General Staff."

(Photograph by Harris & Ewing)



CHARLES S. GASKILL, '99.

Lieutenant-Colonel, United States Corps of Engineers.

DISTINGUISHED SERVICE MEDAL

G. O. 59, Extract: "Charles S. Gaskill, Lieutenant-Colonel, United States Army. For exceptionally meritorious and distinguished services. In charge of the locomotive and car-repair shops at Nevers he carried out the installation and operation of this plant, exhibiting rare executive and engineering qualifications of the highest order."



FRANCIS F. LONGLEY, '05.

Colonel, United States Corps of Engineers.

DISTINGUISHED SERVICE MEDAL

G. O. 59, Extract: "Francis F. Longley, Colonel, United States Army. For exceptionally meritorious and distinguished services. He has been in charge of the Water Supply Service, and commanding officer of the 26th Engineers, a water-supply regiment, since the fall of 1917. His untiring energy, unusual initiative and good judgment have, to a marked degree, been responsible for the plentiful supply of pure drinking water to the combatant troops, thereby materially assisting in maintaining the unusually low rates in sickness among our troops."

(Photograph copyrighted by Underwood & Underwood, New York.)

DECORATIONS AND CITATIONS



HARRY L. ROGERS, '89.

Major-General, United States Quartermaster Corps

DISTINGUISHED SERVICE MEDAL

G. O. 12, Extract: "Major-General Harry L. Rogers, United States Army. For exceptionally meritorious and distinguished services. He has organized and administered with great efficiency the Quartermaster Department in France. He was able to meet each emergency in times fraught with untold difficulties, and by his energy and untiring zeal he has insured to our troops a prompt and constant supply of quartermaster stores, without which the ultimate success of our Army could not have been obtained."

Major-General Rogers also received two Letters of Commendation for Merit, the Cross of Commander of the Order of the Crown (Belgian), and is a Commander of the Legion of Honor, and Companion of the Bath (British).



GERARD SWOPE, '95.

Civilian Aide to General Goethals.

DISTINGUISHED SERVICE MEDAL

"For exceptionally meritorious and distinguished service. As one of the principal advisers and assistants to the Director of Purchase, Storage and Traffic he accomplished the task of working out the detailed plan for bringing under one head the direction and supervision of procurement, storage and issue of all commodities and articles of equipment and supply needed for the Army. It was due to his foresight, ability, energy and loyal co-operation that the procurement program for the great Army of 1918 was successfully planned, and he assisted materially in carrying it into effect, thereby contributing directly to the success of the military progress."



BRAINERD TAYLOR, '99.

Colonel, United States Motor Truck Corps.

DISTINGUISHED SERVICE MEDAL

W. D., Cablegram No. 2832: "For exceptionally meritorious and distinguished services. Serving as Chief Motor Transport Officer of the Advance Section, Service of Supply, he gave proof of excellent judgment and untiring energy in the performance of his duties. By his success in overcoming numerous obstacles involved in the transportation of supplies and troops, he rendered conspicuous services to the American Expeditionary Forces."

Colonel Taylor is also an Officer of the Legion of Honor.

TECHNOLOGY'S WAR RECORD



HENRY M. WAITE, '90,
Colonel, United States Corps of Engineers.

DISTINGUISHED SERVICE MEDAL

Bulletin 43, W. D., Extract: "For exceptionally meritorious and conspicuous services. As Deputy Director General of Transportation, Headquarters, Service of Supply; later as Constructing Engineer of the Transportation Corps and Deputy Director General of Transportation, Zone of the Armies, he displayed marked technical ability, initiative and judgment of a high order. Subsequently, as a member of the Bridgehead Commission of the Third Army, as Chief Motor Transport Officer of the Third Army, and as advisor to the officer in charge of civil affairs at Advanced General Headquarters, he displayed those same high qualities which characterized his previous distinguished service."

Colonel Waite is also made an Officer of the Legion of Honor.



WILLIAM H. WALKER.

Colonel, United States Chemical Warfare Service.

DISTINGUISHED SERVICE MEDAL

"For exceptionally meritorious and conspicuous service. His extraordinary technical ability, untiring industry and great zeal have enabled remarkable results to be achieved in the production division of the Chemical Warfare Service in the face of many obstacles encountered"

(Photograph by Bachrach, Boston)



HERBERT HENRY ADAMS, '99.

Colonel, United States Corps of Engineers.

OFFICER OF THE LEGION OF HONOR

"The Grand Chancellor of the National Order of the Legion of Honor certifies that, by decree of April 4, 1919, the President of the French Republic has conferred on Colonel Herbert H. Adams of the American Army, Chief of the Military Railways in the Zone of the Armies, General Headquarters, the decoration of Officer of the National Order of the Legion of Honor."

DECORATIONS AND CITATIONS



W. B. POLAND, '90.

Director of the Commission for the Relief of the Invaded Regions of France and Belgium.

OFFICER OF THE LEGION OF HONOR

"The Grand Chancellor of the National Order of the Legion of Honor certifies that, by a decree of January 7, 1919, the President of the French Republic has conferred on Mr. William B. Poland, Director of the Commission for the Relief of the Invaded Regions of France and Belgium, the decoration of Officer of the National Order of the Legion of Honor."

Mr. Poland is also a Chevalier of the Legion of Honor, and is a Companion of the British Empire and a Commander of the Order of Leopold (Belgian).



WILLIAM T. ALDRICH, '01.

Captain, United States Ordnance Department

CHEVALIER OF THE LEGION OF HONOR

"The Grand Chancellor of the National Order of the Legion of Honor certifies that, by decree of April 4, 1919, the President of the French Republic has conferred on Captain William T. Aldrich, United States Ordnance Department, Tours, the decoration of Chevalier of the National Order of the Legion of Honor."

MASON S. CHACE, '94.

CHEVALIER OF THE LEGION OF HONOR

The decoration of Chevalier of the Legion of Honor was awarded on December 27, 1918. It was conferred according to the official notification, — "For the service rendered as a member of the French High Commission." The original citation is not available.

TECHNOLOGY'S WAR RECORD



PIERRE S. DU PONT, '90.

CHEVALIER OF THE LEGION OF HONOR.

The decoration of Chevalier of the Legion of Honor was conferred by the French Republic upon Pierre S. du Pont on May 15, 1919, for his service to the Allied cause, particularly during the years 1915 and 1916. The original citation is not available.



CASS GILBERT, '80.

CHEVALIER OF THE LEGION OF HONOR

"The Grand Chancellor of the National Order of the Legion of Honor certifies that, by decree of January 3, 1919, the President of the French Republic has conferred on Mr. Cass Gilbert, American citizen, architect, twice President of the American Institute of Architects, the decoration of Chevalier of the National Order of the Legion of Honor."
(Photograph by Gaisler and Andrews, New York.)



SELSKAR M. GUNN, '05.

Captain, American Red Cross.

CHEVALIER OF THE LEGION OF HONOR

The decoration of Chevalier of the Legion of Honor was awarded on December 27, 1918. It was conferred according to the official notification — "For the excellent services rendered to France in the fight against tuberculosis." The original citation is not available.

DECORATIONS AND CITATIONS



DUGALD C. JACKSON.

Professor of Electrical Engineering, Lieutenant-Colonel, United States Corps of Engineers.

CHEVALIER OF THE LEGION OF HONOR

"The Grand Chevalier of the National Order of the Legion of Honor certifies that, by decree of April 4, 1919, the President of the French Republic has conferred on Major Dugald C. Jackson of the American Army, Chief Engineer of the Technical Board, Paris, the decoration of Chevalier of the National Order of the Legion of Honor."



HAROLD W. JONES, '98.

Colonel, United States Medical Corps.

CHEVALIER OF THE LEGION OF HONOR

"The Grand Chevalier of the National Order of the Legion of Honor certifies that, by decree of April 4, 1919, the President of the French Republic has conferred on Lieutenant-Colonel Harold Wellington Jones of the American Army, Chief Surgeon of the Hospital Center of Beau Desert (Base of Bordeaux), the decoration of Chevalier of the National Order of the Legion of Honor."

(Photograph by Harris and Ewing, Washington, D. C.)



LOUIS H. MAXFIELD, '06.

Commander, United States Naval Reserve Force.

CHEVALIER OF THE LEGION OF HONOR

"The Grand Chevalier of the National Order of the Legion of Honor certifies that, by decree of April 9, 1919, the President of the French Republic has conferred on Lieutenant-Commander L. H. Maxfield of the American Navy, the decoration of Chevalier of the Legion of Honor."

Commander Maxfield also received the Life Saving Medal of the French Navy.

TECHNOLOGY'S WAR RECORD

The following men are known to have been appointed Chevaliers of the Legion of Honor, but the citations are not available

CHARLES W. ADAMS, '05. *Major, Aviation Section, United States Signal Corps.*

WILLIAM H. SAGE, JR., '07. *Colonel, United States Corps of Engineers.*

Navy Cross (United States)

H. D. SHAW, '14. *Lieutenant (Junior Grade), United States Navy.*

"For heroism, and exceptionally meritorious and distinguished service in a position of great responsibility as commanding officer of a submarine chaser in the exacting and hazardous service of ridding the North Sea of Mines."

E. S. LAND, '07. *Commander, Construction Corps, United States Navy.*

(Citation not available.)

K. C. RICHMOND, '17. *Ensign, United States Naval Reserve Force*

(Citation not available.)

Military Cross (British)

ARTHUR EDGAR G. COLLINS, '14. *Captain, Royal Engineers, British Army.*

Royal Gazette, April 2, 1918: "A. E. G. Collins, Royal Engineers. He went forward on his own initiative and reconnoitered a road under heavy machine-gun and shell fire. After several attempts he succeeded in entering a village which was still in the enemy's hands, and was able to guide our attacking troops into the village through the enemy's wire. After fifteen hours' continuous working and fighting he assisted in getting guns forward over very difficult ground. He showed magnificent courage and initiative throughout."

Captain Collins was mentioned in Despatches for services in Battle of Bullecourt, May, 1917.

CHARLES DAVIS DREW, '99. *Major, United States Corps of Engineers.*

General Headquarters, American Expeditionary Forces, France: "Charles Davis Drew, 11th Railway Engineers. The award of the Military Cross by the British Government to you having been approved by the Commander-in-Chief, you are authorized to accept and to wear such decoration.

The award was made for the following services rendered:

Citation: 'In recognition for Meritorious Services rendered the Allied Cause.'

Major Drew also received an Army Citation for Valor.

HOWARD M. EDMUNDS, '05. *Captain, Scots Guards, British Army.*

Supplement to the London Gazette, October 4, 1919: "Lieutenant Howard Maurice Edmunds, Scots Guards, Special Reserve, Attached 2d Battalion. For conspicuous courage as a platoon leader, near Haussy, on twentieth and twenty-first of October, 1918. On the final objective his platoon was met by heavy fire from a farm. Realizing that the direct attack was held up he led his party in a flank attack under heavy fire from close range, got beyond the objective and inflicted casualties on the enemy, who in consequence of his attack began to retire."

JOHN D. MACKENZIE, '11. *Lieutenant, Nova Scotia (Cape Breton) Highlanders.*

London Gazette, December 2, 1918: "Lieutenant John David Mackenzie, 85th Canadian Infantry, Nova Scotia Regiment. For conspicuous gallantry and good leadership. During the first phase of the attack he led his Platoon to the final objective under heavy machine-gun fire. Two days later, when his Company Commander became a casualty he took command, leading his men against machine-gun nests and saving a critical situation on his left by forming a defensive flank. He was untiring in encouraging his men."

DONALD M. McRAE, '16. *Lieutenant-Colonel, United States General Staff.*

London Gazette, May 26, 1917: "Lieutenant Donald Marion McRae, 14th Battalion, Canadian Infantry. For conspicuous gallantry and devotion to duty at Vimy Ridge on third, fourth and fifteenth of April, 1917. "He was untiring in leading his patrols, both day and night, and the information he gained was of the utmost value to his Battalion."

THOMAS AVERY ROPER, '10. *Captain, United States Ordnance Corps.*

War Office List No. 40, Extract: "Thomas A. Roper, Captain, United States Ordnance Corps. By command of His Majesty the King for bravery and distinguished service in the Campaign."

DECORATIONS AND CITATIONS

ALAN EDGEWORTH STEWART, '14. *Captain, Canadian Engineers.*

Award: "Captain Alan Edgeworth Stewart, Canadian Engineers, attached Canadian Corps Heavy Artillery. For most thorough and successful work in laying and maintaining the elaborate system of communications necessary to the Heavy Artillery. The excellence of the communications of which he has had charge since November, 1916, have largely contributed to the success of the whole operations on the Vimy-Lens front."

Croix De Guerre

ROBERT M. ALLEN, '16. *Sous-Lieutenant, French Field Artillery.*

CROIX DE GUERRE WITH BRONZE STAR

"A young American Volunteer in an American Sanitary Section took part with this unit in the Battles of the Chemin des Dames, 1917."

"A volunteer in the French Army, promoted to Cadet, took part in the Battle of July 15-20, 1918, during which he gave proof, under particularly critical circumstances, of admirable coolness and courage."

Sous-Lieutenant Allen's Regiment, 40th French Artillery, received the Medaille Militaire (French), giving every member of the Regiment the right to wear the Fourragère.

THOMAS H. ATHERTON, JR., '09. *Captain, United States Field Artillery.*

CROIX DE GUERRE WITH PALM

"Captain Thomas H. Atherton, 109th Regiment of Artillery. Has shown in difficult circumstances the very highest ability in the command of his battery. Received in his shelter a shell, which burst at his side and killed one of his lieutenants and wounded the other. Lost in four days thirty per cent of his forces and was able notwithstanding, to fulfill his mission of accompanying the Infantry."

Captain Atherton also received the Belgian War Cross, and a Divisional Citation for Valor.

DONALD BELCHER, '15. *American Field Ambulance Service.*

CROIX DE GUERRE WITH SILVER STAR

"American Driver Donald Belcher, S. S. U. 619. Volunteered with enthusiasm during the night of August 6-7, 1917, to take his ambulance near a battery which was under violent bombardment by heavy shells, which had wounded several officers of the battery. Left his ambulance on the road which was under fire and went himself to the rescue of the wounded officers and transported them to the ambulance. Showed courage and devotion to duty which were beyond praise."

EDMUND C. S. BIGELOW, '20. *First Lieutenant, American Red Cross.*

CROIX DE GUERRE WITH BRONZE STAR

"Mr. Edmund Clarence Bigelow, young officer of the American Red Cross, who gave himself without stint to assure the distribution of warm drinks to the troops, even in the first line trenches.

"Showed a tenacity and a devotion to duty without limit to accomplish this patriotic work of mercy with enthusiasm, cordiality and without thought of danger."

DAVID CARB. *Instructor, English Department, Second Lieutenant, French Field Artillery.*

CROIX DE GUERRE WITH SILVER STAR

"David Carb, Cadet, 29th Battery, 244 Regimente Colonial Artillerie, an American citizen having already served France as a stretcher-bearer in 1915, volunteered in the French Artillery in 1918, and was during his stay in the battery a constant example for the personnel by his enthusiasm, his courage and his high morale."

S. V. CHAMBERLAIN, '18. *Private, American Field Ambulance Service.*

CROIX DE GUERRE WITH BRONZE STAR

"Driver Samuel Chamberlain, of the American Sanitary Section 632. During the days of the fifteenth, sixteenth and seventeenth of July, 1918, showed rare qualities of devotion and of courage in generously accomplishing most dangerous missions to evacuate the wounded from the advanced dressing stations."

W. K. B. EMERSON, JR., '20. *Second Lieutenant, United States Field Artillery, Observer 12th Aero Squadron.*
Killed in action, May 14, 1918.

CROIX DE GUERRE

"For intrepidity and entire disregard of personal danger in rescuing wounded under fire near Monastir, Serbia, during heavy bombardment between the months of March and August, 1917."

TECHNOLOGY'S WAR RECORD

COKE FLANNAGAN, '16. *Captain, United States Signal Corps.*

CROIX DE GUERRE WITH SILVER STAR

"Lieutenant Coke Flannagan, 1st Signal Battalion, American. At Vierzy, on July 19, 1918, being attached to the 23d Regiment of Infantry, worked without stopping, under violent artillery fire and kept the telephone wires in good working order."

JOSEPH P. GARDNER, '17. *Captain, United States Coast Artillery Corps.*

CROIX DE GUERRE WITH PALM AND FOURRAGERE

"Captain J. P. Gardner, Coast Artillery Corps, United States Army, Battery H, 2d Brigade, 53d Regiment of Coast Artillery, U. S. A. Called on to open fire suddenly on July 14, 1918, at a time when the camp was under a violent bombardment by shrapnel and gas shells, went almost instantly into action under the command of Captain Gardner and did not cease firing until it had exhausted its ammunition although being constantly shelled without slackening for an instant its fire in spite of serious losses."

Note: The mention of Captain Gardner by name entitles him to wear the Croix de Guerre as well as the Fourragère.

HENRY C. GREENE, '97. *Major, American Red Cross.*

CROIX DE GUERRE

"Captain Copley Greene. Gave most precious help in the evacuation of the Communes invaded in the German advance in March, 1918. Always ready for the most perilous missions, showed in many circumstances superb devotion and a scorn of danger, notably on March 22, when he did not hesitate to enter a Commune under most violent bombardment, to rescue the sick and the old."

Major Greene also received the Silver Medal "Reconnaissance Francaise," the Gold Medal "Femmes de France" (French Red Cross) and the Silver Cross of the "Société de Secours aux Blessés Militaires."

HORACE M. GUILBERT, '18. *Captain, United States Air Service.*

CROIX DE GUERRE WITH PALM

"Lieutenant Horace Moss Guilbert, pilot in the 91st Squadron. Has performed superior service as pilot in an Army Squadron. Attacked in the course of a mission, by several planes, he succeeded in putting the enemy to flight, and returned with his plane riddled with bullets."

JOSEPH S. GUPPY, '19. *First Lieutenant, United States Infantry.*

CROIX DE GUERRE WITH GOLD STAR

"Second Lieutenant Joseph S. Guppy, 23d Regiment, United States Infantry. July 18, 1918, near Vaux-Castille, he displayed great bravery by aiding in taking a nest of machine guns by storm. He attacked a center of enemy resistance, killing four men and taking fifty-three prisoners."

LYMAN C. HIBBARD, '17. *First Lieutenant, United States Field Artillery.*

CROIX DE GUERRE WITH SILVER STAR

"Lyman C. Hibbard, American Volunteer, showed admirable devotion to duty during the winter 1916-17, in the Argonne as well as in the Sector of Hill 304. Gave proof of the finest qualities of endurance, courage and scorn of danger, day and night, from the twenty-fifth to the twenty-eighth of January, 1917, in evacuating the wounded, in frightful weather and over a route which was under particularly heavy bombardment."

CHESTER L. KINGSBURY, '18. *Corporal, United States Corps of Engineers.*

CROIX DE GUERRE WITH BRONZE STAR

"Corporal Chester Kingsbury, Military No. 184,223, Company A, 101st Regiment, American Engineers. Volunteer for a sally against the enemy trenches, distinguished himself particularly during the operation by his courage and devotion to duty."

ARTHUR R. KNIGHT, '17. *Second Lieutenant, United States Air Service.*

CROIX DE GUERRE WITH BRONZE STAR

"Lieutenant (Bombing) Arthur Raymond Knight. Bomber full of enthusiasm, proved, in a night attack back of the enemy lines, that he had fine qualities of daring and coolness. He made several expeditions during the night and returned with his machine seriously damaged by enemy anti-aircraft guns."

Lieutenant Knight also received the Caproni Medal (Italian).

DECORATIONS AND CITATIONS

SAMUEL L. KUHN, '17. *Captain, United States Corps of Engineers.*

CROIX DE GUERRE WITH GOLD STAR

"Captain Samuel L. Kuhn, Corps of Engineers, United States Army. For his excellent work in the St. Mihiel attack, September 12-15, 1918, and for his tireless energy in the Battle of the Argonne, where he showed remarkable ability in the organization of the defensive positions of the 3d Division, September 26-October 27, 1918."

LAWRENCE E. LOVEJOY, '23. *Private, United States Medical Corps.*

CROIX DE GUERRE WITH BRONZE STAR

"Soldier Lawrence E. Lovejoy, Military No. 1,922,368, Ambulance Company 16, American Sanitary Service. From the fourth to the ninth of October, 1918, near Blanc Mont, gave proof of remarkable courage in transporting wounded under fire."

WILLIAM E. LUCAS, JR., '14. *Captain, United States Infantry.*

CROIX DE GUERRE WITH GOLD STAR

"Captain William E. Lucas, 18th Regiment, American Infantry. A courageous and devoted officer, always ready to make any sacrifice. Charged with the liaison between the commander of the Regiment, and the attacking Battalions during the operations of October 1-11, 1918, many times crossed a violently bombarded zone to assure the execution of important orders. Gave proof of great energy, calm and bravery, and won the admiration of the men of his regiment by his scorn of danger and his devotion to his military duty."

Captain Lucas also received Citations from Army, Army Corps, Division, Brigade and Regiment.

GEORGE L. MACKAY, '14. *First Lieutenant, United States Corps of Engineers.*

CROIX DE GUERRE WITH SILVER STAR

Killed in action, April 17, 1918.

"The Master Engineer George MacKay, Candidate Officer, attached to the Engineers of the 96th D. O. Voluntarily took part in an attack on April 17, 1918; after showing superb coolness and devotion to duty was mortally wounded as our troops were returning to their own lines."

GEORGE R. MARTIN, '19. *Second Lieutenant, United States Field Artillery.*

CROIX DE GUERRE

"Helping an Artillery Observing Officer, whose leg had been severed by a shell, back to his post of observation, about thirty yards under heavy shell and machine-gun fire."

AUSTIN B. MASON, '10. *First Lieutenant, United States Air Service, formerly of the American Field Ambulance Service.*

CROIX DE GUERRE WITH TWO BRONZE STARS

"The American Automobile Sanitary Section No. 8, for the following motive. Under the direction of Lieutenant Robert Charles Paroissien, and of the Commanding Adjutant (American) Austin Blake Mason, the American Sanitary Section No. 8, composed entirely of volunteers, assured in a remarkable manner the daily evacuation, going as far as possible to get the wounded, in spite of at times violent bombardment; distinguished itself particularly June 23, 1916, in crossing several times a field of poison gas, under intense fire, without rest, for several hours to bring in as quickly as possible the men poisoned by the gas."

NOTE: The mention of Mason by name confers upon him the right to wear the Croix de Guerre as well as the Fourragère.

Second Citation same as first, dated May 1, 1917.

Lieutenant Mason's Ambulance Section received three Citations for the Croix de Guerre.

DABNEY H. MAURY, JR., '23. *Second Lieutenant, United States Field Artillery.*

CROIX DE GUERRE WITH GOLD STAR

"For work during the German Offensive, May 27-June 8, 1918."

WILLIAM H. MURPHY, '12. *First Lieutenant, United States Infantry.*

CROIX DE GUERRE WITH GOLD STAR

"William H. Murphy, Second Lieutenant, 104th Infantry. Showed remarkable courage and coolness in leading his section in two counter-attacks on the night of April 12, 1918."

TECHNOLOGY'S WAR RECORD

KENNETH B. PAGE, '20. *Private, First Class, United States Sanitary Corps.*

CROIX DE GUERRE WITH GOLD STAR

"Kenneth B. Page, First Class Private, Sanitary Corps. Extraordinary bravery during his service at the dressing station of the 3d Battalion in the engagement of April 10, 1918. He volunteered with a companion to cross two hundred meters of exposed terrain to rescue a mortally wounded officer. They brought him back to the dressing station running the greatest personal risk in so doing."

THOMAS R. PLUMMER, '88. *First Lieutenant, American Red Cross.*

CROIX DE GUERRE

Died from overwork November 24, 1918.

"Thomas R. Plummer, in charge of the Mobile Canteen No. 31, American Citizen, free from military obligations owing to his age, always near the lines, in a sector where climatic conditions are particularly rigorous, created and organized several comforting posts in the most advanced spots of the sector, thus making always available for the troops in the line the benefit of his valuable canteen."

GILBERT N. ROSS, '21 now '23. *Private, American Field Ambulance Service.*

CROIX DE GUERRE WITH BRONZE STAR

"Driver Gilbert N. Ross, American Sanitary Section 638. A driver of great energy and coolness, always showed his devotion to duty in going to get the wounded from the relief stations that were violently bombarded at Mont Kemmel in May, on the Marne in July and during the last offensives of October, 1918, on the Arne and the Aisne."

Private Ross also received the American Field Service Medal.

ROBERT H. SCANNELL, '17. *First Lieutenant, United States Corps of Engineers, formerly in the American Field Ambulance Service.*

CROIX DE GUERRE WITH SILVER STAR

"Automobile Driver Robert Henry Scannell, for the following motive. On August 9, 1917, learning that a telephone operator of the 244th Regiment of Artillery had been wounded at his post, went without hesitation and with the greatest coolness to get the wounded man into his ambulance in spite of the most intense bombardment which was directed upon the trail leading to the battery."

WILLIAM G. SPRAGUE, '16. *Ensign, United States Naval Reserve Force.*

CROIX DE GUERRE WITH GOLD STAR

Killed in landing at Isle Tudy, France, October 26, 1918.

"Ensign Sprague, United States Navy. On October 26, attacked and probably destroyed an enemy submarine which had been sighted by him near an important convoy which he thus efficiently protected.

"Killed gloriously when coming back from this brilliant action, in a landing accident."

KIMBERLY STUART, '19. *Ensign, United States Naval Reserve Force.*

CROIX DE GUERRE WITH SILVER STAR

"Kimberly Stuart, American Volunteer in the Medical Service of the American Ambulance, Section 10. March 13, 1917, under intense fire of the enemy artillery, picked up and transported gunners of the battery with the greatest calm and coolness."

ALICE WELD TALLANT, '98. *First Lieutenant, Smith Relief Unit.*

CROIX DE GUERRE WITH BRONZE STAR

"Miss Alice Weld Tallant, M. D., Member of the American Committee for Devastated France. Voluntarily performing the duties of a major-aide, in the French Army at Coulommiers and at Château-Thierry, during the months of June, July and August, 1918, she showed great devotion, watching night and day during the rush of wounded, showing greatest coolness under bombardment, especially at Coulommiers, July 15 and 16, and later at Château-Thierry, in the beginning of August.

"Afterwards devoted herself with untiring energy to the care of the civilian population returning to the devastated regions, and rendered them inestimable services."

JOHN C. TYLER, '17. *First Lieutenant, United States Air Service.*

CROIX DE GUERRE WITH BRONZE STAR

Killed in action September 18, 1918.

"John C. Tyler, Lieutenant, 1st Reserve, American Officer, Pilot of Squadron 'Br. 129.' Excellent Bombarding Pilot, gallant and courageous; started in Aviation by bombardments on the field of battle, at low altitudes. During a bombarding mission on the sixteenth of July, 1918, helped bring down an enemy plane."

DECORATIONS AND CITATIONS

KENNETH WEEKS, '12. *Private, Foreign Legion (French Army).*

CROIX DE GUERRE WITH SILVER STAR

Killed in action June 17, 1915.

"Kenneth Weeks, Legionary, Military No. 27,058. Reason for the citation: An American of great intellectual culture animated by the most noble sentiments and having for France a profound admiration. Volunteered spontaneously at the beginning of hostilities and showed the most brilliant qualities during the campaign and particularly distinguished himself on the seventeenth of June, 1915, in an attack on the German positions."

FRANCIS R. WHELTON, '21. *Second Lieutenant, United States Infantry.*

CROIX DE GUERRE WITH BRONZE STAR

"Second Lieutenant Frank Whelton, 111th Regiment of Infantry (American). Sergeant in the 305th Regiment Infantry; during the night of July 6-7, 1918, in the Banal Wood (Lorraine), he contributed greatly towards repulsing a strong enemy patrol, which tried to seize the post composed of French and American elements."

This decoration was awarded to Lieutenant Whelton "posthumously," in spite of which circumstance he is alive and well at the present writing.

JAMES M. WHITE, '14. *Captain, Chemical Warfare Service, formerly in the American Field Ambulance Service.*

CROIX DE GUERRE WITH SILVER STAR

"James White, Civilian, 'Sous-Chef,' American Sanitary Section No. 1. Brave and calm under all circumstances. Always ready to personally perform the most arduous tasks. He particularly distinguished himself on the seventeenth of August, 1917, before Verdun, by transporting wounded men under the most intense enemy bombardment."

JAMES COUNCILL WOOTEN, 2d, '18. *Second Lieutenant, Aviation Section, United States Signal Corps.*

CROIX DE GUERRE WITH PALM

Killed in action August 2, 1918.

"Second Lieutenant (Observer) James C. Wooten, American Squadron No. 1. On July 5, 1918, being charged with a photographic mission, he accomplished it perfectly, although he had lost his escort. During the mission, he was engaged first in a combat with three enemy aeroplanes, which he drove off; then in a second battle with seven machines, during which one enemy plane fell out of control; he was obliged to land in our lines wounded in the head. He was killed on the second of August, 1918, in an aerial battle."

ELLWOOD H. ALDRICH, '19. *Second Lieutenant, United States Coast Artillery Corps.*

CROIX DE GUERRE

(Citation not available.) Lieutenant Aldrich also received the American Field Service Medal.

GEORGE L. BAUM, '19. *Corporal, American Field Ambulance Service.*

CROIX DE GUERRE

(Citation not available.)

THOMAS C. CLARKE, '93. *Colonel, United States Corps of Engineers.*

CROIX DE GUERRE WITH PALM AND SILVER STAR

(Citation not available.)

CHARLES S. COTTER, '08. *Private, Canadian Infantry.*

CROIX DE GUERRE

(Citation not available.)

Private Cotter also received the Belgian War Cross.

GEORGE I. CROSS, '01. *Captain, United States Corps of Engineers.*

CROIX DE GUERRE WITH TWO SILVER STARS

(Citation not available.)

JOSEPH DESLOGE, '12. *Sous-Lieutenant, French Army.*

CROIX DE GUERRE

For work as Liaison Officer with the 21st Regiment, Czecho-Slovak Infantry before Vouziers, September, 1918.

TECHNOLOGY'S WAR RECORD

FENTON G. ELWELL, '19. *Sous-Lieutenant, French Army.*

(Citation not available.)

Sous-Lieutenant Elwell also received the American Field Service Medal.

CROIX DE GUERRE WITH SILVER STAR

ARMIN F. HEROLD, '09. *First Lieutenant, United States Air Service.*

(Citation not available.)

CROIX DE GUERRE

NORWOOD P. JOHNSTON, '19. *American Field Ambulance Service.*

(Citation not available.)

CROIX DE GUERRE

HENRY LAMY, '13. *Sergeant, French Army.*

Died of wounds, in September, 1915.

(Citation not available.)

CROIX DE GUERRE

HILTON W. LONG, '18. *Captain, United States Air Service.*

(Citation not available.)

CROIX DE GUERRE

ROBERT L. MOORE, '21. *First Lieutenant, United States Air Service.*

(Citation not available.)

CROIX DE GUERRE WITH PALM

GORDON STEWART, '20. *Cadet, United States Air Service.*

Died in France, January 9, 1918.

(Citation not available.)

CROIX DE GUERRE

MARCELLUS E. WILD, '14. *Ensign, United States Naval Reserve Force.*

(Citation not available.)

CROIX DE GUERRE

War Cross (Belgian)

THOMAS H. ATHERTON, JR., '09. *Captain, United States Field Artillery.*

BELGIAN WAR CROSS

"Thomas H. Atherton, Jr., Captain, Battery F, 109th Field Artillery. For meritorious and distinguished service during the Lys-Scheldt Campaign in Belgium, October 31-November 11, 1918, where near Gaverken, Belgium, on October 31, 1918, Captain Atherton displayed great courage under shell fire when his battery was being shelled during its participation in a rolling barrage, his example of bravery being an inspiration to the cannoners and enabled the battery to successfully complete its mission."

LEWIS W. DOUGLAS, '17. *First Lieutenant, United States Field Artillery.*

(Citation not available.)

Lieutenant Douglas also received an Army Citation.

BELGIAN WAR CROSS

Italian War Cross

R. D. FARQUAHAR, '95. *First Lieutenant, American Red Cross.*

ITALIAN WAR CROSS

Order of the Day, N. 51: "Lieutenant Robert David Farquahar. Among the first to go to the region of the Trentino to bring aid and to relieve the suffering of the population, exhausted by four years of war; with indefatigable energy and in spite of great fatigue, he brought help and distributed personally a large quantity of materials of all description. After the signing of the armistice he aided the numerous people who were repatriated from Austria, to whom he gave precious comfort, both spiritual and material; giving proof of a high sense of philanthropy, of self-abnegation and of sacrifice."

DECORATIONS AND CITATIONS

ELMER L. JOHANSEN, '20. *Lieutenant (Junior Grade), United States Naval Reserve Force.*

ITALIAN WAR CROSS

(Citation not available.)

Silver Medal for Bravery (Italian)

GUY LOWELL, '94. *Major, American Red Cross.*

SILVER MEDAL FOR BRAVERY (ITALIAN)

"During an intense aerial bombardment, without fear of personal danger he directed, with exemplary calm, the administering of first aid, and with other volunteers helped in the evacuation of the wounded to the hospitals."

Major Lowell is also an Officer of the Order of the Crown of Italy.

Other Foreign Decorations

WARREN J. BARKER, '16. *Major, United States Coast Artillery Corps.*

ORDER OF DANILU I (THIRD CLASS).

"For meritorious service rendered to the Allied cause."

CARROLL BENNING, '99. *Major, American Red Cross.*

MEDAL OF THE FRENCH "SOCIETE DE SECOURS AUX BLESSES MILITAIRES"

ALBERT W. BUCK, '13. *Major, American Red Cross.*

ORDER OF SAN SAVA (SERBIAN) FOURTH AND FIFTH CLASS

SEVERANCE BURRAGE, M. D., '92. *Major, American Red Cross.*

ROYAL RED CROSS MEDAL (SERBIA).

ORDER OF SAN SAVA (SERBIAN).

JEREMIAH CAMPBELL, '91. *Major, United States Corps of Engineers.*

DECORATION OF THE MERITE AGRICOLE (FRENCH).

CHARLES E. FOX, '14. *First Lieutenant, United States Sanitary Corps.*

TWO DECORATIONS FROM SERBIAN GOVERNMENT

WILLIAM HOVGGAARD, *Professor of Naval Architecture, Massachusetts Institute of Technology*

GOLD MEDAL OF THE INSTITUTE OF NAVAL ARCHITECTURE OF GREAT BRITAIN

"For important work in Submarine Problems."

EDWARD Y. KEESLER, '17. *Captain, United States Coast Artillery Corps.*

ORDER OF LEOPOLD (BELGIAN).

L. H. LEHMAIER, (now LEMAIRE), '13. *Captain, Australian Infantry.*

BRONZE MEDAL OF HONOR (FRENCH), AND MENTIONED IN DESPATCHES, 1914.

E. H. MAGOON, '14. *Member, American Red Cross Commission to Serbia.*

GOLD MEDAL FOR CIVILIAN SERVICE FROM SERBIAN GOVERNMENT

TECHNOLOGY'S WAR RECORD

T. RIOJO OHNUKI, '09. *Captain, Imperial Japanese Navy.*

DECORATION THIRD ORDER OF RISING SUN (JAPANESE)

"By Japanese Emperor on the reason 'I have done splendid efforts to defeat German Navy at Tingtow.'"

ORDER OF SAINTS MAURIZIO AND LAZZARO (FOURTH ORDER OR CAVALIER UFFICIALE)

"From Italian King as I have done splendid efforts to construct submarine which was intended to attack German ships."

LOUIS E. REBER, '85. *Director, Army Educational Corps.*

OFFICER OF THE ACADEMY, FRENCH REPUBLIC

May 28, 1910, Citation. "Mr. Louis E. Reber, Director of the Section 'Engineering' of the American University of Beaune (Cote d'Or.), is named an Officer of the Academy."

EDWARD STUART, '10. *Major, United States Sanitary Corps.*

ORDER OF ST. SAVA OF III CLASS (SERBIAN). (*III Class is Commander.*)

"I have pleasure in informing you that His Royal Highness, the Prince Regent of Serbia, Alexander, by His Decree of January 17 last, has been pleased to bestow upon you the Serbian Order of St. Sava of III Class, in recognition of your sympathies for our Country, and for your efficient work during the campaign of 1915 in combating the contagious diseases as a member of the American Red Cross Mission in Serbia." (Signed) L. Michailovitch, Serbian Minister to the United States.

RED CROSS MEDAL (SERBIAN)

Awarded to Edward Stuart, Director of the American Red Cross Sanitary Commission, November 1, 1915, in Nish, Serbia, by Lieutenant-Colonel Soubotitch, Vice-President of the Serbian Red Cross, for his valuable assistance to the Serbian Red Cross and to the Serbian Army during the invasion of Serbia by the Germans, Austrians and Bulgars.

ARTHUR K. TYLEE, '07. *Lieutenant-Colonel, Royal Air Force.*

OFFICER OF THE ORDER OF THE BRITISH EMPIRE

Citations from General Headquarters, American Expeditionary Forces

BURTON A. ADAMS, '98. *Major, United States General Staff.*

"Major Burton A. Adams, Infantry. For exceptionally meritorious and conspicuous services in connection with operation of the Office of Base Censor, American Expeditionary Forces."

DOUGLAS B. BAKER, '15. *Captain, United States Infantry.*

Citation. G. O. 1, General Headquarters, American Expeditionary Forces, 1919.

DAVID F. BENBOW, '12. *Captain, United States Ordnance Corps.*

"Captain David F. Benbow, Ordnance Department. For exceptionally meritorious and conspicuous service as Ordnance Officer of Base Section No. 6, American Expeditionary Forces."

WILLIAM M. BOUKNIGHT, '18 and '19. *First Lieutenant, United States Infantry.*

"First Lieutenant William M. Bouknight. For exceptionally meritorious and conspicuous services with the 52d Infantry, France, American Expeditionary Forces."

"First Lieutenant William M. Bouknight. For distinguished and exceptional gallantry at Saint Mihiel, France, on September 15-16, 1918, in the operations of the American Expeditionary Forces."

Lieutenant Bouknight also received a Divisional Citation for Valor. Lieutenant Bouknight states that Saint Mihiel should read Gerardmer Sector, Vosges.

DECORATIONS AND CITATIONS

E. E. DAWSON, JR., '14. *Major, United States Ordnance Corps.*

(Citation not available.)

ALLEN D. PETTEE, '16. *Master Engineer, Senior Grade, United States Corps of Engineers.*

"Master Engineer, Junior Grade, Allen D. Pettee, Company D, 74th Engineers. For exceptionally meritorious and conspicuous services in Sound and Flash Ranging Service, France, American Expeditionary Forces."

FRANK W. SNOW, M. D., '98. *Lieutenant-Colonel, Medical Corps.*

"Major Frank W. Snow, Medical Corps. For exceptionally meritorious and conspicuous services at Camp Hospital No. 12, American Expeditionary Forces."

PAUL H. TAYLOR, '14. *Captain, Ordnance Department.*

"For especially meritorious services as commanding officer, 101st Mobile Ordnance Repair Shop, operating with the 26th Division throughout the campaign. He personally inspected the divisional artillery, frequently under hostile shell fire. Through his energy, foresight, capable management and excellent judgment his organization accomplished not only its regularly prescribed duties, but rendered valuable assistance in the maintenance of the corps artillery and tractors and of the horse-drawn vehicles of the 26th Division other than ordnance vehicles. The methods devised by this officer have been a valuable contribution to those which were later prescribed for the operation of mobile ordnance repair shops."

Captain Taylor also received a Certificate of Merit from the Chief Ordnance Officer, American Expeditionary Forces.

GEORGE R. WALLACE, JR., '13. *Major, United States Field Artillery.*

"For gallantry in action near Laneville, France, November 6-7, 1918, and for his brilliant leadership."

JASPER WHITING, '89. *Major, United States Chemical Warfare Service.*

"Major Jasper Whiting, Chemical Warfare Service. For exceptionally meritorious and conspicuous services as Liaison Officer with the Chemical Warfare Service in England, American Expeditionary Forces."

THOMAS H. WIGGIN, '95. *Lieutenant-Colonel, United States Corps of Engineers.*

"Major Thomas H. Wiggin, D. C. and F. For exceptionally meritorious and conspicuous services at Tours, France, American Expeditionary Forces."

FORREST E. WILLIFORD, '17. *Colonel, United States Coast Artillery Corps.*

"Colonel Forrest E. Williford. For exceptionally meritorious and conspicuous service in Trench Artillery Section, Chief of Artillery, France, American Expeditionary Forces."

Colonel Williford also received two recommendations for Distinguished Service Medal.

CHARLES H. WOOLLEY, '16. *First Lieutenant, United States Air Service.*

"First Lieutenant Charles H. Wooley, Air Service, 49th Aero Squadron. For distinguished and exceptional gallantry at Aincreville, on October 23, 1918, in the operations of the American Expeditionary Forces."

Army Citations, American Expeditionary Forces

JOHN R. COFFIN, '17. *First Lieutenant, United States Aviation Section, Signal Corps.*

G. O. 42, 1st Army, Extract: "First Lieutenant John R. Coffin, Air Service United States Army, Pilot, 104th Aero Squadron. On November 3, 1918, at the special request of the Corps and Division Commanders, made an infantry reconnaissance, unprotected and at a low altitude, and although attacked by three Fokkers, returned with most important information to the advance of our troops."

HAROLD F. MARSHALL, '19. *First Lieutenant, United States Air Service.*

G. O. 45, 1st Army, Extract: "First Lieutenant Harold F. Marshall, Air Service, United States Army, Pilot, 88th Aero Squadron, served with never failing loyalty and spirit. By his ability and initiative he contributed greatly to the success of the squadron."

TECHNOLOGY'S WAR RECORD

WILLIAM G. PERRY, '07. *Captain, United States Air Service.*

G. O. 30, 1st Army, Extract: "Captain William G. Perry, Air Service, United States Army. Organized and commanded the 477th Aero Construction Squadron which made such an enviable record for itself. Under his direction it built airdromes at Autreville, Amanty, Biqueley and St. Mihiel. At Biqueley by superb organization and morale he was able to build the field in ten days. At these headquarters, as Equipment Officer during the latter part of the operations West of the Meuse, he successfully and with great tact handled the very difficult proposition of obtaining and allocating to the units of this Command, Air Service material, transportation and equipment of all kinds. His extreme conscientiousness was an example which all may well emulate."

Divisional Citations, American Expeditionary Forces.

F. O. BILLINGS, '23. *United States Field Artillery.*

G. O. 43, Second Division, Extract: "Corporal F. O. Billings, Battery E, 12th Field Artillery. * * * Occupying an observatory in a most advanced portion of the infantry lines, performing their duty under heavy shell fire, these four men were able to furnish invaluable information to our Artillery."

G. O. 88, Second Division, Extract: "Corporal F. O. Billings, Battery E, 12th Field Artillery. * * During the operations near Blanc Mont these non-commissioned officers were on duty as observers in Second Battalion outpost, and exhibited extraordinary courage and coolness under heavy shell fire."

GEORGE B. DANENHOUR, '22, *Major, United States Infantry.*

Citation: "On September 14, 1918, near Vilecy Sur Trey, in an advance it was necessary to cross an open valley which was covered by enemy machine guns. Captain Danenhour fearlessly exposed himself to fire in directing the reduction of these machine guns by the units under him, thereby saving many lives and facilitating the safe advance of two battalions."

HENRY S. DERBY, '19. *Corporal, United States Field Artillery.*

G. O. 28, 26th Division, Extract: "The following named officers and enlisted men are herewith: Cited for gallantry and especially meritorious service in action against the enemy and are recommended for the award of the Distinguished Service Medal. . . . Private Henry S. Derby, Battery A, 101st Field Artillery."

WILLIAM A. GRAY, JR., '17. *First Lieutenant, United States Infantry.*

G. O. 81, 5th Division, Extract: "First Lieutenant William A. Gray, Jr., 6th Infantry. Having been wounded in the arm by high explosive on the night of November 9, 1918, in moving to the Bois-de-Mincil, near Remoiville and Jametz, refused to go to the dressing station and remained with his company, placing it in position. On November 10, 1918, he led his company through a shell-swept area into the Bois-de-Jametz. Upon the signing of the armistice he reported to the first aid station and was evacuated. Lieutenant Gray displayed great courage and bravery under heavy shell and machine-gun fire and is deserving of the highest commendation."

W. H. MESSENGER, '92. *Captain, United States Corps of Engineers.*

Reported recommended for Distinguished Service Medal. (Not awarded.)

F. G. STRITZINGER, JR., '92. *Colonel, United States Infantry.*

G. O. 46, 6th Division, Extract: "The following named officers are hereby cited for courageous and meritorious service and devotion to duty while serving with their organizations during the periods the Division was in the Gerardmer Sector, Vosges Mountains, and in the Meuse-Argonne Offensive: . . . Colonel Frederick G Stritzinger, 53d Infantry."

GEORGE L. SUTHERLAND, '16. *First Lieutenant, United States Air Service.*

Reported to have been cited for Distinguished Service Medal.

ROBERT S. COOK, '21. *Second Lieutenant, United States Field Artillery.*

Cited in G. O. 94, First Division, December 13, 1918.

CHARLES B. GLANN, '16. *First Lieutenant, United States Signal Corps.*

(Citation not available.)

DECORATIONS AND CITATIONS

CARL MALMFEST, '17. *Private, United States Corps of Engineers.*

(Citation not available.)

H. A. RAPELYE, '08. *Captain, United States Infantry.*

(Citation not available.)

Other Citations

CARROLL R. BENTON, '10. *Sergeant, United States Corps of Engineers.*

Cited June 29, 1919. "For exceptionally meritorious and conspicuous services in Sound and Flash Ranging Service in France."

This citation is supposed to have been issued by General Headquarters.

MAURICE E. DENNY, '08. *Major, Argyll and Sutherland Highlanders, British Expeditionary Forces.*

Mentioned in Despatches. C. B. E., July, 1918.

W. E. DUGAN, JR., '12. *Captain, United States Air Service, 1918; French Army and French Aviation, 1914.*

(Citation not available.)

NUGENT FALLON, '06. *Lieutenant (Junior Grade), United States Naval Reserve Force.*

Citation for Navy Cross (not yet awarded).

"This officer was one of the first American Naval Aviators to reach Europe and was attached for some time to the Royal Air Force Station at Felixstowe, England. He participated in several successful offensive patrols over the North Sea and made one of the first experimental flights from towing lighters. Made one raid over Helgoland Bight in company with several other British seaplanes, during which one enemy seaplane was destroyed." Lieutenant Fallon was also mentioned in Despatches to the Admiralty (British) and by Admiral Sims.

EARL R. HATTEN, '18. *Ensign, United States Navy.*

Mentioned in Admiralty (British) Despatches.

AUSTIN Y. HOY, '04. *Second Lieutenant, Royal Garrison Artillery.*

Mentioned in Sir Douglas Haig's Despatches, November 8, 1918.

JOHN R. HUNNEMAN, '16. *First Lieutenant, United States Infantry.*

Cited "For work at the Marne." (Citation not available.)

THEODORE MAIN, '16. *Sergeant, First Class, United States Quartermaster Corps.*

Cited for Croix de Guerre (Cross not yet received).

C. E. A. WINSLOW, '98. *Major, American Red Cross.*

Medal for Distinguished Public Service.

CHAPTER V

OUR MEN ON THE WESTERN FRONT

In considering the work of Technology's former students as individuals the place of honor belongs to those men who, forsaking business or study, became members of the combatant forces of their respective nations. This war was won, as every other war has always been won, by those nations which were able to exert the greatest actual fighting power on the field of battle and, while this power depended largely on munition supply and transportation facilities, it depended even more on the number and character of the men who made up the combatant forces. The successes of the allied armies in Europe were due in part to the work of learned committees, clever inventors and industrial organizers, but they were due far more directly to "poilus," "tommies" and "doughboys" who held on or went forward, but who never went back, and who, when overwhelmed or surrounded like the Old Guard, never surrendered, but instead fought on to death or victory.

To evaluate the work of each individual in the fighting machine is impossible and is in fact undesirable. The men themselves would be the last to wish it. They are not proud of their own acts, for such pride is contrary to the very spirit of the fighting unit; rather the soldier is proud of his regiment, his division, and above all his nation. He has learned that these larger units can succeed only through the sacrifice of the individual, for the slightest thought of self on the field of battle means dislocation of the general plan and ultimate destruction of all.

Yet the story of these men should be recorded, both as a tribute to their sacrifice and as a memorial to future generations who may gain inspiration from the courage, loyalty and devotion of their forefathers, and it is for this purpose that the ensuing pages have been written.

Altogether 451 Tech men took part in battle during the war. Under such circumstances it is impossible to tell every man's history, nor can their service be described as a whole, for each was but an infinitesimal part of some larger organization, and the work of one is but little related to that of the others. The account here set forth is simply a collection of incidents; not the greatest services rendered, not the most important deeds, nor yet the acts involving the greatest self-sacrifice, but rather those of which circumstantial accounts are available, and which may be regarded as typical of the work of all Tech men who took part in the same engagements or were members of the same branch of the service.

TECH MEN IN THE ARMIES OF FRANCE AND BELGIUM

While most of our men naturally served in American units, there were many who, long before the United States entered the war, were fighting in the armies of our allies. To these men all honor must be paid. It was they and their comrades who stemmed the German hordes at the Marne and at Ypres. It was they who sacrificed themselves at Verdun and at the Somme. It was they who gave their own flesh and blood in wearing down the enemy, thus rendering much easier the task of the American forces when they finally took the field. Raymond van Eetvelde, '09, served in the Belgian forces, but we know little regarding him except that he died from pneumonia, contracted in the Dixmude sector. A number of Tech men were at one time or another members of the armies of France. These include Henry Lamy, '13, P. G. Vignal, '15, Kenneth Weeks, '12, W. E. Dugan, Jr., '12, and Joseph Desloge, '12; later R. M. Allen, '16, H. A. de Bonneval, '19, F. G. Elwell, '19, and A. R. Knight, '17, also entered the French forces and, in addition to these, a very considerable number of Tech men served with the French as members of the American Field Ambulance Service and later of the Reserve Mallet.

It will be recollected that the first serious action of the war took place at Charleroi,

TECH MEN IN THE ARMIES OF FRANCE AND BELGIUM

on the twenty-second of August, 1914, and in this affair at least one Tech man is known to have taken part, namely, Henry Lamy, '13, a citizen of France. Lamy had been graduated from the Institute the year before, and hence was taking his two-years service with the colors as a member of the 132d Infantry Regiment, an active unit of the French army. With his regiment he participated in the retreat from Charleroi, in the First Battle of the Marne and in the advance to the Aisne, where he was wounded sometime late in October.

In the meanwhile the fighting had extended to the north and the first struggles about Ypres and the Yser had occurred. Both sides had called their reserve divisions, and among them we find Captain Paul G. Vignal, '15, a reserve officer in the famous Chasseurs des Alpes. Vignal had entered the Institute in 1911 to pursue special work in mechanical engineering and remained until June, 1914. At the outbreak of hostilities he



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CHASSEURS ALPINS. COMRADES OF PAUL G. VIGNAL, '15

returned to France and rejoined the "Blue Devils," who were classed among the best "shock troops" in Europe and who were generally thrown in wherever the Allies undertook the offensive. In November they were ordered to the Ypres sector. The type of fighting may be judged by the official communiqués, one of which, for December 2, states "West of Dixmude, allied attacks have revealed a strengthening of the German line," and again, on the seventeenth, "Along the River Lys, attacks by our troops launched with the intention of testing the enemy's line, attained local successes."

Shortly before Christmas Vignal wrote to Mr. Walter Humphreys conveying his Christmas greetings to the Institute and giving some description of the conditions under which he was fighting. In this letter he says: "I am still alive after a very bad time. We have a two-days rest, but tomorrow everything will start again. I was very lucky, but this cannot always last. I hope, but I cannot think it possible, to get out of it. I have seen death too near. The weather is terrible. We are around Ypres in the water and mud. Dead bodies are close to us. The smell is horrid. We will get the best of them in this war but it will last long."

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A day or two later Vignal was called upon to lead one more attack to "test" the German defense. A comrade, Captain Petitpas, gives this account of his behavior:

"I was near him in the trenches at the moment when he was about to go out to charge the enemy. He was not unaware that it was almost certain death — indeed, we all knew it. He had already spoken to his men with the utmost coolness and had explained to them all which was to be done, as though he ignored the fact that rifles were awaiting them; then superbly he sprang over the trenches, followed by all, drawn on by his splendid example."

In order to protect himself somewhat Vignal had dressed as a common soldier and carried a rifle and bayonet like the others. He had not counted, however, upon the fact that his attitude and gestures of command would immediately mark him as a leader. He went down in the first rank, being the first Tech man to give his life, but the assault of his company was such as to evoke cheers from their comrades.

Early in September two Tech men who had been studying abroad joined the French army. These men, Kenneth Weeks, '12, and W. E. Dugan, Jr., '12, enlisted in the Foreign Legion, both being assigned to the Second Regiment "de Marche" of the First Regiment of the Foreign Legion.

Throughout the winter of 1915 this regiment was used as a unit for assault along the entire front and finally in April, 1915, it was sent to a point near Arras to take part in the great spring offensive. After a few days of rest the Legion took over a sector of the line which lay south of the village of Neuville-Saint-Vaast, and on the morning of May 9, after some five hours of bombardment, it assaulted that terrible maze of trenches which has since become known to history as the "Labyrinth." The first battalion to go over was swept away almost to the last man, but the others followed, carrying the first, second and third lines of the enemy trenches and finally capturing the village of La Targette. The fighting which followed was terrific, for it was the first time that the Germans had ever been thrown on the defensive on a large scale, and it was a point of honor with them not to yield a foot. The first regiment of the Legion lost its colonel and nearly all of its officers, while among its American members four were wounded. Nevertheless, at the close of the day the line had been advanced several kilometers, and for the first time since the previous August the French Infantry cheered as it saw its artillery limbered up and trotting forward to new positions.

The Legion was soon withdrawn for rest and reorganization. The fighting had been of a severity of which the war up to this time had furnished few examples. It seems, therefore, a special tribute to Weeks that he was cited for conspicuous valor at the taking of La Targette. He soon gave further proof of his courage by volunteering as a bomb-thrower. The work of the bombers at this period of the war was of a desperate character; no quarter was asked or given and the danger was not decreased by the type of bomb then in use among the Allies. The Germans were far better equipped and, as a result, the French grenadiers had become known as the "Suicide Club."

For several weeks the opposing forces struggled for the possession of the Labyrinth. This position was dominated by Hill 119, directly north of it, and on June 15 the Legionnaires were recalled to storm this point of vantage and carry the advance to the Cabaret Rouge. At noon of the sixteenth the Legion "went over," the leading battalion being that to which Weeks and most of the other Americans were assigned. They suffered not only from the fire of the enemy, but from that of their own artillery, since most of the observers had been killed and the shrapnel burst short. Nevertheless, they pushed on, some driving the enemy from the Labyrinth, while the main body stormed Hill 119 and a few, crossing it, rushed on down the reverse slope to the Cabaret Rouge. All night without food or water and under merciless fire the Legion hung on, and on the morning of the seventeenth they again advanced carrying a good portion of the German third line at the point of the bayonet. It was apparently in this affair that Weeks met his death. When last seen he had just hurled a bomb and was running toward the third line of the German trenches. The ground where he fell was not reached by his comrades, but in the ensuing November his body was found in No Man's Land.

Dugan was more fortunate and survived to take part in even more famous engage-

TECH MEN IN ARMIES OF FRANCE AND BELGIUM



THE FRENCH INFANTRY AT VERDUN

ments. In August, 1915, the Legion, much depleted and reorganized, was concentrated to take part in the great Champagne offensive. The artillery preparation, which lasted some seventy-two hours, was the most terrific yet attempted, the roll of sound giving rise to the term "drum-fire." Early in the morning of September 25 the first French regiments assaulted. The Germans, utterly stunned by the artillery fire, gave way on a front of six kilometers. All their lines were pierced and French Cavalry poured through into open country beyond. For a few hours it seemed that the "day of glory" had arrived, but it was not to be. The gap was too narrow, and even in its midst isolated centers of resistance held out doggedly sweeping the country to left and right and firing on the rear of the more advanced French units.

Towards evening the Legion moved forward as a reserve. Rain began to fall and all night the men crawled through the mud, receiving machine-gun and artillery fire from flank and rear. The same thing occurred throughout the twenty-sixth, while on the twenty-seventh the regiments were caught by artillery fire and badly cut up. On the twenty-eighth the commander, impatient at his losses, obtained permission to attack and accordingly at three in the afternoon the Legion went forward, the 1st Regiment assaulting the Bois Sabot, while the second attacked the Ferme Navarin. The artillery had not cut the wire and the Germans were ready. The scene which followed is thus described by Rockwell, the historian of the Legion:

"Men pitched forward into graves newly dug by bursting shells, to be immediately covered deep by a fresh explosion. At points in the line the stream of lead was so thick that falling men were turned over and over and rolled along the ground like dead leaves driven before a late autumn wind. Of the battalion leading the assault only one man got through the entanglement and he fell headlong into the trench with a bullet through his knee. Other men were at his heels, however, and leaped into the desired trenches."

Dugan survived this affair also, but his unit was literally cut to pieces. The two regiments of the Legion were consolidated and many individuals were transferred elsewhere. Dugan went to the 170th Infantry Regiment of the line and later to the aviation service, becoming a member of the Lafayette Escadrille. When the United States entered

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the struggle he was commissioned in the American Air Service and served until June, 1918, as a member of the 103d Aero Squadron. Later he was sent to Orly Seine and placed in charge of repairs and tests. In March, 1919, he was finally mustered out as captain, United States Air Service, after fifty months in the field.

During the Champagne Drive of September, 1915, Dugan was fighting not far from Henry Lamy, who has already been mentioned. Lamy, after a month in hospital, although still unable to use his left hand, had been given work in a munition factory. When his hand recovered he once more volunteered for service at the front, and in the summer of 1915 he served as a non-commissioned officer of Infantry, rising to the rank of sergeant, being recommended for a commission and receiving the Croix de Guerre. His unit was among those selected to break the German lines in Champagne. As in the case of the



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FRENCH INFANTRY OF THE LINE.

COMRADES OF HENRY LAMY, '13, MOVING TO THE ATTACK IN CHAMPAGNE.

Foreign Legion, it was held up by isolated strong points and by fire from positions on the flank, each of which had to be reduced in turn. While attacking one of these Sergeant Lamy, leading his section, was shot down, mortally wounded, being the first graduate of the Institute to fall, for neither Vignal nor Weeks had received degrees. When hit he was well in advance of his comrades, and throughout that day and the next night they were unable to reach him. On the ensuing morning they advanced to the point where he had fallen, but he was beyond human aid.

After the United States entered the war an increased number of Tech men entered the French service. Some of these, as in the case of Robert M. Allen, '16, did so because of some slight physical defect which prevented them from entering the American service. Others who had been previously in the American Field Ambulance Service had come to feel that this type of duty was not sufficiently active and, since the United States as yet had no combatant units in the field, had preferred to fight for their country in the uniform of France. Among these were David Carb (formerly an instructor in the English Department) and Dinsmore Ely, '18. Carb, who had been a member of the Ambulance Service and the Red Cross, enlisted in the Foreign Legion. He later transferred to the French

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Artillery and received the Croix de Guerre "for his courage and enthusiasm." Ely, it will be recollected, was one of the two members of the Technology Ambulance Unit who resigned, rather than drive a camion. Ely enlisted in the Lafayette Flying Corps of the French Army and after taking his preliminary training was assigned to Escadrille, Spad 102. He saw service in the Moselle sector and became known as an exceptional machine gunner. Later he was commissioned in the American Air Service, but at his own request was reattached to his old French squadron. He was flying to rejoin it at Montdidier when he met with the accident which killed him.

There may have been occasional misunderstandings between the French and American units abroad, and perhaps since the armistice the diplomatic representatives of the two countries may not at all times have been in complete harmony on matters of policy, but during the war, our undergraduates and alumni, both French and American citizens,



NEUVE CHAPELLE

(Underwood & Underwood, N. Y.)

fought side by side in the armies of France, and today there will be found no more enthusiastic supporters of France and of all things French than those American Tech men who fought in the uniform of horizon blue.

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It is not until Neuve Chapelle that we find a Tech man engaged with the British Forces in France. This man was D. M. Jemmett, '21, at that time a corporal in the First Field Company of the Canadian Engineers. At the Second Battle of Ypres he again appears as our sole representative. Jemmett seems to have escaped the worst part of the gas cloud which has made that affair famous, for he survived to fight in many subsequent actions, including Festubert, May, 1915; Givenchy, June, 1915; Ploegsteert, July, 1915; Loos, September, 1915; Sanctuary Wood, June, 1916; and Souchez, November, 1916. He was wounded three times in the year 1916, and was promoted until he attained the rank of lieutenant. He also received the Distinguished Conduct Medal of the British Army, for



(U. S. Official)

THE HINDENBURG LINE AT BULLECOURT. NOTICE THE BANDS OF BARBED WIRE
IT WAS HERE THAT THE COMRADES OF L. H. LEHMAIER, '13, FIRST PIERCED THIS FORMIDABLE POSITION

coolness and gallantry in constructing bridges under heavy fire, remaining at work in one case after being badly wounded.

A considerable number of Tech men served with the Canadian Expeditionary Forces, among whom we find the names of Harry Cavanagh, '12, C. S. Cotter, '08, F. S. Carson, '17, J. N. DuVernet, '20, S. B. Lane, '10, P. H. Lazenby, '08, H. F. Lewis, '05, J. A. McKenna, '03, J. D. MacKenzie, '11, T. H. Mace, Jr., '13, C. B. Magrath, '11, D. M. McRae, '16, E. H. Moffatt, '18, F. A. O'Leary, '05, A. G. Ray, '13, C. F. Reilly, '15, L. A. Richardson, '19, W. B. Riddell, '18, H. A. Robertson, '10, W. W. Russell, '22, Harold Schaffer, '09, Edward Steere, '14, A. E. Stewart, '14, S. E. Storey, '14, and W. M. Thomson, '22. Of these, Lewis, Robertson, Schaffer and Cavanagh lost their lives; MacKenzie, McRae and Stewart won the British Military Cross.

Reilly and Robertson were members of the famous Princess Patricia's Canadian Light Infantry. Both of these men, together with Jemmett and Storey, went through the fighting in early June, 1916, when the Germans made their third attempt to crush the Ypres salient, and to break up preparations for the Battle of the Somme, an engagement sometimes called the "Canadian Ypres," but referred to by most of its survivors as "Sanctuary Wood." It has been stated that in this battle the Princess Patricias were practically wiped out; some of their units doubtless were, but Robertson and Reilly escaped. Reilly was wounded in September of the same year, and was later commissioned and placed in charge of a labor company, only to be wounded again near Passchendaele during the Third Battle of Ypres. Robertson, after winning a commission, returned to the line as a member of the 44th Canadian Battalion, but was killed while leading his men in an attack on the town of Avion, a suburb of Lens, May 11, 1917.

Another Tech man who saw service at an early date was Captain L. H. Lehmaier, '13, of the 4th Australian Infantry Battalion. Lehmaier served in the New Guinea campaign in August, 1914, and later at Gallipoli and in Arabia, after which he went with his regiment to France, in time to take part in the Battle of the Somme.

The Australians first appeared on the western battle-line on July 23, when they

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were called upon to storm Pozières. The village was reduced to rubble by the artillery fire, and before dawn was carried by assault. On the twenty-sixth the advance was resumed and the Australians plowed their way steadily north, fighting from redoubt to redoubt, along the communication trenches, with Stokes mortar, bomb and bayonet. Water was scarce, and the Royal Engineers, together with some Canadians, were kept busy building a pipe-line to supply the advancing units. One of the Canadians was Lieutenant Harry Cavanagh, '12, already a veteran of Contalmaison and High Wood. The work was performed under continual fire from the German batteries, whose observers could sweep almost every inch of the ground. On the twenty-fourth of August the head of the pipe-line had been brought almost up to the village of Pozières, when a shell burst among the detachment, and Lieutenant Cavanagh received a wound from which he died a few days later.

Our men were not, however, all colonials. Several served with the most famous regiments of the British Army, and one, a captain in the Scots Guards, has given us a very interesting account of his experiences:

"When the war started, I was a lieutenant in the Territorials attached to the Royal Engineers and was sent down to Plymouth (England) to work on coast-defense searchlights. Two interesting things occurred during my stay there which lasted until July, 1915. One was the sailing of Admiral Sturdee's expedition, of which the "Invincible" and "Inflexible" were the principal ships. As every one knows, Admiral Sturdee met and engaged von Spee off the Falkland Islands and scored a complete victory. The other event was the arrival of the Canadians.

"In 1916 I was glad to get an opportunity to change into an infantry regiment — the Scots Guards. In the early days of October, 1916, I was assigned to the Second Battalion and went to France to undergo a series of experiences very different from those with the searchlight section. On joining the battalion I found them out of line, at rest in a place called Vergies, where life was very pleasant. We had plenty of riding and sport, and even the work, which consisted of field duties and sham battles, was most interesting and very good fun.

"At the end of October word came that we must go back to the Somme battlefield, and the battalion marched off at full strength and in very good condition, to take its place in the front lines. We went into the trenches in front of Le Transloy, which was then in the hands of the Germans. I was destined to occupy many different types of trenches subsequently, but this first experience was quite the worst — in fact soldiers who had been with the battalion throughout the war agreed that holding such a line was far more trying than many battles. Thirty-five men were killed or wounded in the first twenty-four hours, one man was actually drowned in the mud, and the Germans spent one pleasant afternoon trying to blow up our position with 5.9 howitzer shells. They passed along about one mile of the front with an average of three shells a minute for four hours; there was nothing for us to do but smoke cigarettes, watch the correction which they applied occasionally to their shooting, and wonder whether they would give just the right amount. Several shells came right into the trench, but luckily we had relatively few casualties, as the mud was so very soft that nothing but a direct hit did more than cover one with mud.

"We were glad to learn that we were to leave this very unhealthy spot and take over from the French a point about three miles away. I was sent on in advance with a corporal and two men, to be in line with the French and learn the way about before the battalion came in. This line was opposite the famous town of Saillie-Sailliesel, which had recently been captured by the French. I remember that the welcome was very cordial, and the captain of the French company opened a bottle of the best champagne, which was quite an unusual beverage to find in front-line trenches.

"The evening that my battalion came in the Germans sent over a party of an officer and four men at a point about two hundred yards from our extreme right, who entered a trench occupied by grenadiers. They shot a French machine gunner and bombed their way down the trench, wounding eight grenadiers, till a French officer rushed forward and killed the German leader with his revolver. The four German soldiers then seized the machine gun and started to carry it back across No Man's Land, when they

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were noticed by a corporal in my platoon in charge of a Lewis gun. He got onto them very quickly and gave them half a drum, killing them all. The following night he brought back the machine gun and the papers of identification of the Germans."

Early in the next year the Canadians, including, as we have seen, a very considerable number of Tech men, again won fame in the capture of Vimy Ridge. The attack began on April 9, and during the first day all objectives were taken. Hill 145, at the northern end of the ridge, was in possession of the Canadians next day. The original objectives were by now exceeded, but though Hill 145 was now in Canadian hands, its defenders were suffering from machine-gun fire from flank and rear.

Accordingly, on the morning of April 12, the Canadians and the British attacked under cover of a snowstorm, sweeping over the northern slope of Vimy Ridge and carrying the various outlying hills and woods upon their front. One of the battalions taking part was the 44th. This battalion, at one phase of the engagement, fighting its way along through the blinding snow, arrived at its objective, only to find that no friendly troops were visible either to the right or left. Volunteers were called for to work out to the flanks and locate the nearest British organizations, and among those who responded was Lieutenant H. F. Lewis, '05. With another officer he started upon the perilous mission but, so far as can be ascertained, they had gone no great distance when they were intercepted by a counter-attack. Lewis was mortally wounded and taken prisoner, and died the same day in a Bavarian Field Hospital.

Of the other Tech men who served with the British and Canadian forces only a few can be mentioned. One unusual incident, of which a fairly detailed account has been preserved, is the death of Captain Braxton Bigelow, '10. Bigelow, who was the son of Major John Bigelow of the United States Army, at the outbreak of the war was engaged as a mining engineer in Peru. He enlisted in the American Field Ambulance Service and later had been commissioned in the Royal Artillery from which he transferred as captain to the Royal Engineers. He had been once wounded and had been recommended for gallantry and for distinguished service. On July 23 he took part in a raid upon a portion of the line near Lens, the object of the raid being to investigate a series of mine craters existing in a salient of the enemy's line known as the "hairpin," where it was believed that a mine shaft existed. At two minutes after zero Captain Bigelow, with six sappers, followed the raiding party across No Man's Land. Almost at once one of his men was killed and two were wounded, and Bigelow left a fourth to look after them. He soon discovered the mine shaft and descended with one of his remaining men, leaving the other at the top as sentinel. They captured a prisoner who was forced at the pistol's point to act as guide and the three proceeded to a junction of two galleries where they were fired on from the northernmost. Bigelow stationed his last man at this point and turned south with his prisoner. Presently the sentinel heard Bigelow's voice, and then a shot. He followed and recaptured the prisoner, who was now alone. When asked where Captain Bigelow was, the German replied by pointing up a second shaft. Captain Bigelow's men waited until the signal for recall but he was never seen again.

Another of our men who had a most unusual experience was Lieutenant John D. MacKenzie, '11, of the 85th Nova Scotia (Cape Breton) Highlanders. MacKenzie, who as instructor in geology had been one of the most popular members of the Institute staff, had resigned early in 1916 and enlisted in the Canadian Army. He rapidly rose to the rank of lieutenant, serving at Fampoux and in the counter-offensive before Amiens in 1918. This attack began about the twentieth of August and continued until by the first of September the British were in contact with the famous Quéant-Drocourt switchline. On September 2 a general assault was ordered which carried the position. During this affair MacKenzie served with distinguished gallantry, leading his platoon to the final objective on the first day, and for two days afterwards, when his captain had become a casualty, he directed the attack of the company with skill, upon one occasion saving the entire situation by quickly forming a defensive flank. He also was conspicuous in his efforts to rescue wounded, in some cases from the enemy's barbed wire, and throughout the affair set a splendid example to his men of courage and perseverance, and for his conduct he subsequently received the Military Cross. Unfortunately, he was finally wounded by a shell

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fragment which pierced his chest, inflicting so ghastly a wound that he was left on the field for dead. He was discovered before life was quite extinct, and after several days in a critical condition began to mend, although at the present date he has by no means fully recovered.

One more man who saw service during this period deserves mention, for probably no man in the Institute has such a record of promotions. This man is Donald M. McRae, '16. McRae enlisted as a private in the Canadian forces on December 30, 1915. He had previously studied for three and a half years at West Point and in a few months he rose in rank to that of major. Finding that he was not likely to get to France for some time, he resigned, went to England, and re-enlisted as a private in a Canadian regiment there. He was again quickly promoted to major, but feeling that it would be unjust to his men to take them into action with his brief training, he succeeded in having himself reduced to a lieutenantancy and with this rank accompanied his unit to the battle-line. He subsequently fought in the Battles of the Somme, Arras, and Vimy Ridge, as a member of the 14th Battalion of the First Canadian Division. He was slightly wounded at Vimy and received the Military Cross. On recovering from his wound, as the United States had entered the war, he resigned, returned to the United States and was commissioned a captain in the United States Army. On reaching France he was sent to the Army General Staff School, at Langres. Upon graduation from this course he became Assistant Chief of Staff G-2 of the 78th Division, and was promoted to the rank of lieutenant-colonel. While in the American service he took part in the St. Mihiel drive and the Meuse-Argonne and was twice recommended for the Distinguished Service Medal.

It would not be proper to leave the exploits of the British Army without some mention of the aviators. Of these, several were Tech men notably, D. E. Bell, '17; M. C. Kinney, '11; L. W. Prescott, '15; L. A. Richardson, '19; S. E. Storey, '14; T. A. Tillard, '09, and A. K. Tylee, '07. Tillard, as we have already seen, lost his life while trying out a new machine near the front.

Tylee has a somewhat unusual record. Entering the Royal Air Force in August, 1915, he flew for approximately a year with various English squadrons along the front, becoming a flight commander. In 1917 he was sent home, was promoted to the rank of major, and was placed in command of Camp Borden, Ontario. Subsequently, after advanced work in England, he became inspector of training for the Royal Air Force in Canada, continuing in this capacity to the end of the war, being promoted to the rank of lieutenant-colonel and being decorated as an officer of the Order of the British Empire.

Of the others we have comparatively fragmentary records, with the exception of Kinney, whose letters furnish most interesting reading. In one of these, dated April 20, he tells of his first aerial combat in the following words:

"This afternoon I had my first fight. At a quarter after five we went out in two flights — twelve machines — the C. O. leading. I was in the last flight, the tail end of the show. Before we started the sky was full of big black clouds, which we struck at about eight thousand feet.

"After we had been flying for about half an hour I saw that the first flight had broken up, some were diving, some were climbing, and there seemed to be more planes about. Then it dawned upon me that it was a fight.

"By that time I was nearly up to it. There was a burst of flames ahead, and I saw a Camel turn on its side and go down. Then I was in the midst of it. There was a big red Hun, the ghastliest thing I ever saw. I certainly did not want to pick a scrap with him. I wanted to run, but something would not let me. So I jammed my nose down, pressed my controls, and pop-pop-pop-pop-pop my guns went, and I saw my tracers streaking after the red devil.

"Then I heard something from another quarter. Pop-pop-pop-pop-pop. I saw fine threads of thin blue smoke passing between my planes. I looked back, and a big green and white triplane was diving on me. I put my head down, turned the bus on its side, and did a climbing turn. Pop-pop-pop-pop-pop, I turned around again and he was still after me. I do not know what I did then, but I threw the bus around some more, and the next time I looked he was gone.

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"The fight seemed to be over, so I pointed my nose toward the setting sun and soon ran into other Camels, and together we hustled home.

"I wish I could stop here. I wish that was all there was to it. The worst part of a show is frequently the return home. And so it was in this case. The machine I saw go down in flames was the C. O.'s—the finest, whitest major in the British Army. We also lost another who went down inside the Germans' lines.

"My flight commander, who has been flying in France for two years, said it was the hottest scrap he was ever in. As it was my first, I know it was the hottest I was ever in."

It developed that the "big red Hun" in this affair was none other than the famous Baron von Richthofen, and the next day the German communiqué credited the Baron with his seventy-ninth and eightieth victories. Kinney remarks that he came very near being the Baron's eighty-first, but the Baron never brought down his eighty-first opponent, for the next day he was himself sent to earth within the British lines.

It may be safely said that all the men who served in the Royal Air Force had very similar experiences, and not the least typical was that of Kinney a few months later, when the enemy caught him at a disadvantage and succeeded in landing a bullet in his gasoline tank. The bullet and four pieces of the tank entered his right hip inflicting a frightful wound, while at the same moment his engine went dead and the machine fell to an altitude of fifteen hundred feet. Here he succeeded in switching on the reserve gasoline tank and getting safely back within his own lines. His wound, however, was of such a nature that he was obliged to remain at the hospital through practically all the remainder of the war.

Another of our men who saw service with the British was Lieutenant L. A. Richardson, '19, who says:

"I was very fortunate in lasting four months with the Royal Air Force in France before I was shot down. My good luck is largely due to Major 'Mick' Mannoek, who is now officially recognized as the leading British airman. At the time of his death in France, July 26, 1918, he had officially seventy-three Huns confirmed, the Distinguished Service Order with two bars, the Military Cross and bar and since has been awarded the Victoria Cross. I would just like to say a word about 'Mick.' Few have heard of him, as he did not seek publicity, but those who knew him, knew the greatest flight leader who ever went to France, as well as one of the squarest, jolliest, and finest of men. Several times I have seen him get three Huns in one scrap, in less time than it takes to tell. Largely to him, our squadron (74) made a record for any squadron that ever went to France, by getting officially confirmed one hundred and ten Huns in eighty-six days and losing only seven men over the lines ourselves."

THE FIRST AMERICAN UNITS

Among the first Americans to take an active part were the railway engineers, notably the 11th, 12th and 14th Regiments. In the *Technology Review* for July, 1917, we find the names of eleven Tech men, all members of the First Battalion, 14th Railway Engineers, a body of men recruited from the railways of New England, and commanded by Major (later Lieutenant-Colonel) B. W. Guppy, '89. Among the officers of the 11th we also find Captain (later Major) C. D. Drew, '99. These railway units were not supposed to be combatant troops, and they were not armed nor trained in the use of weapons. Nevertheless, certain of them quickly saw service of a most active variety, for the 11th and 12th Engineers took part in the Cambrai offensive in the fall of 1917.

Of this affair Captain W. S. Etheridge, '12, has given us a most interesting account:

"The Hindenburg Line before Cambrai was supposed by the Germans to be tank-proof in that the principal trench was some fifteen feet wide and nearly as deep. No tank then in the service could cross it. However, the British were brainy as well as determined. Certain of the tanks, every fifth one, as I remember, carried a huge "fascine" on its top. This bundle of brush and poles was cylindrical in shape, about ten feet long and perhaps eight in diameter. It was so carried that by pulling a chain inside the tank it could be rolled off in front of the machine.

"The barrage was glorious. It started at 6.20 the morning of November 20 with-

THE FIRST AMERICAN UNITS



LIGHT RAILWAY ENGINEERS NEAR THE FRONT

(U. S. Official)

out any preliminary fire and the tanks started with it, following right up to the shrapnel fringe. Immediately the planes came over. It seemed to me that there were a million and that they were flying tip to tip. The fog permitted close tank formations and the wire was cut as per schedule. Jerry probably laughed as he thought of his 'tank-proof' line, but if so, the laugh was short, for the 'fascine tanks' ran up to the big ditch, hesitated, dropped their bundles into the trench and proceeded.

"About four in the afternoon the cavalry started in. Can you visualize two roads, parallel and close together? Picture lines of horsemen riding two abreast and head to tail at a fast trot and then picture this for over seven hours. Colonials, British and Indians, riding every colored horse except white, something over thirty thousand of them. It was the greatest sight I ever witnessed."

As every one knows, the very success of this drive proved its undoing. As a diversion to prevent the enemy from sending reinforcements to Italy it was highly successful. There was, however, no chance to gain ground permanently, for no troops were available to hold the extended line.

Etheridge remarks: "November 30 Fritz counter-attacked from both ends of the salient that we had created. He had the poor taste to drive his southern wedge less than two miles from where we (12th United States Engineers) were snugly dug in for the winter. Also I had the poor taste to be between Gouzecourt and Gonnellieu when he came through our first line. As a surprise this attack was an immense success, and we were forced to drop back a mile. The last of the Boche dead lay within a stone's throw of our camp. By miraculous luck our casualties were negligible, but a detachment of the 11th Engineers made a glorious name in their valiant fight with picks and shovels, against the best trained fighting machine in history."

In the meanwhile the other Americans had begun to arrive. In order to provide a continual supply of officers and specialists, training schools were established at certain points, one of the most notable being that at Langres. Theoretical instruction could, however, not take the place of practical experience, and so at the close of each course, the graduating class was sent to the front to see war as it was actually being fought.

TECHNOLOGY'S WAR RECORD

Among the Tech men who thus went to the front was George Lewis MacKay, '14. MacKay had been a master engineer in the 117th Engineers of the 42d Division and after being graduated from the school at Langres, as a 1st lieutenant, in company with other candidates he went to the front where he was attached to a French unit. Hearing that a raid was to take place, together with his chum, Sergeant H. B. Moody, he volunteered to take part. Moody in writing to Lieutenant R. A. D. MacKay, '19, says:

"It was on the morning of the seventeenth that he and I went over the top with French engineers and infantry. We were to stay together until we came to a certain trench; then George was to go with one French engineer and I was to go with another, each of us carrying two bombs, for use in blowing up dugouts.

"Our barrage started about five A. M., just at the break of day, and we all started over the top together, your brother just ahead of me. We had not gone more than about one hundred feet when the Germans started to bombard us with 77 mms., 105 mms., trench mortars and machine-guns.

"We reached the first-line trench of the Germans where there was a small fight. It was at this place that George and I were separated.

"I went up a communication trench where I got tangled up with some Boches and after using both bombs in blowing up dugouts, I started out looking for George. The barrage fire was sure hell. I was knocked down three times by shells exploding at my side. I did not return to the trenches until a Frenchman told me that your brother had returned, so I started back looking for him, but he never showed up nor does any one seem to know just what happened."

As to what occurred to MacKay after he became separated from Moody little is known, except the statement of two French soldiers. He was seen engaged in a furious hand-grenade fight around a dugout which was still resisting, and it is believed that he was either killed during this fight, or while attempting to return through the heavy counter-barrage which had been laid down by the enemy.

American fighting units soon commenced to occupy sectors, and several minor brushes occurred. One of these affairs, a raid staged by the 1st Division, was the first



THE FIRST UNITED STATES DIVISION IN TRAINING DURING THE WINTER OF 1917-1918

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offensive operation carried out by the American Army. Several officers of the 1st Engineers were assigned the duty of destroying the enemy's wire with Bangalore torpedoes. Among them was Lieutenant T. W. Ryan, Jr., '17.

Similar raids were carried out by the 26th Division. A statement by Corporal Chester L. Kingsbury, '18, gives an idea of what such an affair sometimes was. "We were with the French at the Chemin des Dames. While in this sector a volunteer detail was called from the engineers to build a bridge across a canal patrolled by the enemy, to allow the infantry to cross for a raid. Eleven of us went out and one of us came back. The papers tried to kill me too, but even they were unsuccessful." Another affair was that at Seicheprey, in which 16 of our men, all of the 26th Division took part, and in which Enos C. Sawyer, '18, was killed. Lieutenant Samson K. Cohen, '10, of the 101st Engineers reports that his company on this occasion "stood to" for fifty-five hours in the rain and cold, without overcoats, and much of the time in gas masks.

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In the spring of 1918 the Germans broke through the allied defense in one last desperate effort to reach Paris and to snatch victory from defeat. About eight o'clock in the morning on the twenty-first of March, aided by a thick morning mist, they advanced upon the thinly-held British line in the Cambrai salient, and before evening had penetrated to a depth of sixteen kilometers. The British were outflanked and swept back; by the twenty-fourth of March they had lost touch with the French. In the gap remained a mass of troops — ordnance personnel, men from remount and supply depots, and labor units including the 11th, 12th and 14th United States Engineers, among whom were some fifteen Tech men. Captain Etheridge reports that his regiment lost its entire equipment, and was for four days reported as annihilated.

An officer of the British Army, General Cary, arrived upon the scene and set about reorganizing the heterogeneous mass of troops into something which might be considered a fighting organization. So successful was he that for six days "Cary's Chickens" maintained contact between the French and British Armies, and took the full force of the German advance toward Amiens.

On the evening of March 21 the Canadians launched a gas attack against the city of Lens which served as a diversion and which was the greatest projector attack ever attempted. They were assisted by the 1st Battalion of the 30th United States Engineers which subsequently became the 1st Gas Regiment. The battalion was commanded by Major (later Lieutenant-Colonel) Louis E. Robbe, '05, who has given this account of the affair.

"Four British gas companies, assisted by one American company from the 1st Battalion, installed six thousand projectors and forty-eight Stokes mortars. This work was done entirely at night, and it was more than a week before the installation was complete. Everything was in readiness on the night of the fifteenth of March, but weather conditions were adverse until the night of the twenty-first — then at 11.00 P. M., in a very light wind, 4,500 projector drums and nearly 3,000 Stokes mortar bombs were discharged upon the enemy inside of three minutes; the total amount of gas discharged was about seventy-five tons. There was immediately formed a dense cloud of gas approximately forty feet high which was brought into strong relief as the enemy signal lights went up.

"An artillery barrage was laid down at 11.08 P. M. by the field guns and at 11.30 P. M. by the heavy howitzers and long cannons. What a din there was — and what a spectacle! The colored lights of the enemy right in front of me and the flashes of the many field guns near me, together with the illuminating flashes of the heavies in the rear, which caused a ruined building or a small hill to stand out lighted as by day, was a sight I shall never forget.

"The artillery barrage stopped at 11.45 P. M., thus completing the largest projector attack ever gotten off by either the Allies or the Boche during the entire war."

In reserve behind the British front at this time were a number of American divi-

TECHNOLOGY'S WAR RECORD

sions which had been sent there to receive training. When the Germans broke through these divisions were organized into the Second Corps of the American Expeditionary Forces. The Inspector General of this corps was Colonel (later Brigadier General) George D. Moore, '88. Speaking of his experiences at that time, he remarks that there were "lively times all along the line." At one time the corps included ten divisions. Later it was reduced in size to two. These two, the 27th and 30th, saw heavy fighting in the fall of 1918, and with them General Moore took part in the attack against the Hindenburg Line and the Canal tunnel (see page 193). He was subsequently promoted to the rank of brigadier general but did not have opportunity to command a brigade before the armistice.

After several days the force of the German drive began to abate somewhat, and the efforts to hold became more successful. By the thirtieth of March the Germans had almost reached Villers-Bretonneux, but numerous troops from training areas and from England were now being thrown into line, among them, portions of the 6th United States Engineers.

Serving as a lieutenant in D Company of this organization was Alfred S. Milliken, '14. The regimental sector lay in front of the little village of Warfusse-Abaucourt, and Company D was assigned a trench about four hundred yards west of the village, covering the road to Fouilloy. The 6th Engineers were sappers or combatant engineers, thoroughly trained as infantry, and when the Germans attacked they were given an exceedingly hot reception. A letter written by Private Cornelius Connors of D Company after this affair has been preserved, in which he gives this short but picturesque account: "Saturday came and I will remember it as long as I live. We were under barrage fire all day. Fritzie tried to come over several times, but how we did pepper those Dutchmen. Fritzie tried everything while we held the trenches to drive us out. Aeroplane raids, gas shells and every other thing. But he did not succeed. We got some fine target practice peppering those square-heads, take it from me. It is a great life if you don't weaken."

Foiled in their assault, the Germans resorted to bombardment. About three in the afternoon they registered a direct hit with a high-explosive shell in the firing bay of the trench in which Milliken was standing, killing him and several of his men. Of this affair Private Connors says: "What Sherman said war was is nothing compared with that Saturday. I lost my bunkie, also a lieutenant from New Bedford [Milliken] who was stationed with our company. He died a man, and his dear mother should be proud of him, for the bravery he showed."

Early in the offensive, the world was amazed by reports that Paris was being intermittently shelled by a German gun from a distance of sixty-five miles. While this gun never did any great damage, it was most annoying and occasionally, as upon Good Friday, when a shell struck the church of Ste. Gervaise during the hours of worship, caused serious loss of life. It was important to destroy it as soon as possible, but it was first necessary to find its approximate location, a problem solved by determining the path of the shells and then figuring backwards. Various French and American officers worked on the problem, and among these was Captain R. A. Seaton, '11, who succeeded in working out the trajectory within thirty-six hours after the firing began.

Captain Neal E. Tourtelotte, '17, gives an account of what next occurred. "I was sent up to the French front near Soissons May 22, 1918, and was engaged in observing the artillery action for the succeeding week. One battery of two big railroad guns hidden in the woods was after 'Big Bertha,' which was protected in a novel manner. Seven different emplacements were connected together electrically so that at the instant 'Bertha' fired the other six fired also. This made it exceedingly difficult for the aviators to tell exactly which was 'Bertha.' They had other troubles as well, since the Boche had the air filled with their planes and attacked all observation machines. Since it was impossible to locate 'Bertha' by aerial observation, sound ranging was resorted to. By this method the heavy vibrations of the big gun were readily separated on the chart from those of the six lighter vibrations of the protecting batteries. The railroad guns [with which Tourtelotte was serving] then opened up and put thirty-five shots within twenty-five meters of 'Bertha;' seven of them struck on the actual gun platform itself — as later photographs showed. 'Big Bertha,' needless to say, was put out of action. However, a few days

later when the Boche came through the Chemin des Dames on his way to Château-Thierry, 'Big Bertha' number two appeared in a different position in the Forêt de St. Gobain and resumed firing. We got number one though."

Early in the morning of May 27, the enemy assaulted the allied line at the Chemin des Dames, overrunning all resistance, and by May 30 they were but fifty miles from Paris. The French were practically without reserves and the 2d United States Division was called upon to check the enemy's advance. There followed the struggle around Boursesches and Bois de Belleau, which has come to be popularly known as the Battle of Château-Thierry.

When the Americans arrived on the scene they found the more or less disheartened French organizations retreating, covered by an exhausted rear guard. The Germans had already seized the heights overlooking the towns of Torcy, Boursesches, Boussieres and Belleau and were exerting heavy pressure against the French outposts in these villages. So critical was the situation that the Americans were ordered to take up a defensive position immediately. For some reason the Germans after discovering our men did not attack at once. On June 3, however, they made a reconnaissance in force, and followed this with a series of determined assaults.

The first attack was completely broken up by the French and American artillery. Regarding this incident Franklin O. Billings, '23, who was serving with Battery E, 12th Field Artillery says: "It was on the afternoon of June 3 that we arrived on the front. The Division had been ordered into the Château-Thierry pocket to stem the onward push of the Huns, who found it easy work to force back the exhausted French. The roads were filled with French artillery and infantry going to the rear, and precious little of any nationality coming up. Most of our infantry and the marines had reached the front the day before, and had done some fighting unaided by their artillery. On the afternoon of the third, Batteries D and E of the 12th Field Artillery went into position in a small orchard about seven kilometers west of Château-Thierry and about two south of Torcy.

"We were ready to open fire when a supposed Frenchman, mounted, came galloping across the fields in front of us crying 'Le Boche, le Boche, parti, parti!'" We were immediately given orders to limber up and prepare to move. We had no more than done so, however, when orders came to unlimber and get back into battery. The Hun spy (for such the supposed Frenchman undoubtedly was) had nearly accomplished his work, for even while we were limbering up the enemy had launched an attack against our infantry. As quickly as we were again in battery, co-ordinates were telephoned to us locating a line on which to lay a barrage. As soon as the officers had the firing data figured, we opened fire. Every one felt that the outcome of the war might depend on the work of our guns during the next few minutes, and the 75's were worked up to their maximum rate.

"In this section of France there are large sink-holes, — some filled with water. In the rear of my battery there were two large ones filled to the brim. The boys were shoving the shells in so fast that the gun barrels soon became piping hot, and it was necessary to keep them cool if any kind of accuracy was to be obtained. The rolling kitchen was raided and every kind of a pan, kettle, or pail (canvas or metal) was put into use. Four bucket brigades were formed from the sink-holes to the guns — one to each. This was a scene a moving picture concern would have given a good many thousands of dollars to have filmed; four bucket brigades to four guns; four gun crews working frantically to fire the greatest number of shells in the least amount of time; four guns spitting and blazing forth fire, snapping back in recoil and up again into firing position every two seconds; four columns of steam rising from the overheated tubes; everybody not serving the guns rushing up boxes of ammunition. Even the weary war-worn Frenchmen paused to watch the scene.

"Soon the whole regiment and a brigade of French artillery were blazing away and the air was echoing back and forth with the metallic 'pangs' so familiar to all who have been in action with field artillery.

"We fired steadily for seventy-two consecutive hours before the Boches realized they had run up against a wall which would require more force than they possessed to bend, let alone — break."



BOIS-DE-BELLEAU

By June 6 all units of the 2d Division including the 5th Marines, which had not been able to get up in time for the first action, had arrived. The divisional sector was shortened and preparations were made to counter-attack. There were at this time with the division a considerable number of Tech men besides Billings. Among these may be mentioned Lieutenant-Colonel (later Brigadier-General) Logan Feland, '92, who was second in command of the 5th Marines; Lieutenants Walter B. Littlefield, '16, Joseph S. Guppy, '19, and G. W. Furbush, Jr., '23, all of the 23d Infantry, and B. M. Reynolds, '20, of the 6th Marines; Sergeant-Major James R. Fisher, '19, of the 23d Infantry; Sergeants G. C. Babcock, Jr., '23, of the 6th Marines, A. D. Goodall, '23, and Colin B. Joe, '23, both of the 23d Infantry, and P. F. Kershaw, '23, of the 9th Infantry; and Pt. C. F. Parker, '21, of the 5th Marines. There were probably a number of others.

On the morning of the sixth of June the 5th Marines moved forward in unison with the French upon their left, and by 7.10 A.M. had carried their objectives, making what was termed by observers a perfect attack. It was found, however, that their right flank was exposed, and the 6th Marines were obliged to move forward to cover it. The Germans immediately launched a counter-attack against the 3d Brigade consisting of the 9th and 23d Regiments of Infantry which lay to the right of the Marines, and the struggle lasted through that evening and night. It was during this fighting that Hill 181, the highest point of Bois-de-Belleau was taken, and it marked the turning point of the engagement. Although the Americans had on a previous occasion taken the offensive at Cantigny, the fighting in Bois-de-Belleau represented their first attempt at a sustained attack without the aid of surprise. The Germans even at this date had not yet realized what dangerous antagonists the Americans were, and fought with a stubbornness seldom displayed later in the campaign.

It was here that General Feland first distinguished himself, for he was conspicuous throughout the affair not only for his personal valor, but for his ability and resourcefulness as a leader. He subsequently received the Distinguished Service Cross and in the accompanying citation is credited with having contributed very largely to the success at this point by his personal example. His subsequent record was no less brilliant. He was

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promoted to the rank of colonel on the eighteenth of July and commanded the 5th Marines throughout the remainder of the campaign, including the Aisne-Marne Offensive, St. Mihiel Offensive, Champagne Offensive, and the Meuse-Argonne. In addition to the Distinguished Service Cross, he subsequently was awarded the Distinguished Service Medal, the Legion of Honor, and was six times cited for the Croix de Guerre.

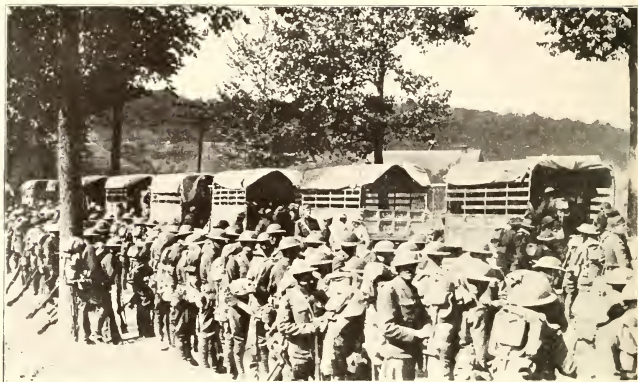
The results of this engagement are hard to gage, but it is certain that after the night of June 6 the Germans never again had the same confidence in their ability to master the Americans. During the next few days the whole of Bois-de-Belleau was cleared. In the course of the fighting no fewer than eight German divisions were successively thrown back, among them units of the famous Prussian Guard. The story of the engagement received great publicity and it had a tremendous effect in restoring the badly shaken morale of the Allies.

Perhaps not so famous, but in all probability even more important as regards the outcome of the war was another engagement,—the real battle of Château-Thierry, which was being fought at about the same time. While the 2d Division was halting the German advance to the westward of Château-Thierry, French troops, aided by the 7th Machine Gun Battalion of the 3d Division were falling back through the streets of the town itself. They were ultimately forced to cross the river, but every attempt of the Germans to follow them proved futile. Apparently there was but one Tech man present with this organization, Lieutenant Donald N. Swain, '17. Swain and his companions were strung out along several miles of the river front and again and again the Germans attempted to find a weak point in their slender line. Every attempt, however, was frustrated, and with the victories of the 2d Division the line became temporarily stabilized, with the Marne still presenting an obstacle to the German advance.

On the night of June 14 and 15 the battle was reopened, the Germans making one last effort to break through. This affair is regarded by many as having been a decisive action of the war, and certainly if any organizations can claim to have made the greatest contribution toward victory they are those which successfully resisted this desperate attempt of the Germans to cross the river and sweep down upon Paris. The blow fell with particular violence on the sector directly opposite Château-Thierry and Jaulgonne which was held by organizations of the 3d and 28th United States Divisions. Swain and his comrades in the Seventh Machine Gun Battalion were again heavily engaged from the start. Perhaps the most glorious chapter of the whole American campaign was written this day by the 30th Infantry, with which Lieutenants John R. Hunneman, '16, and Douglas B. Baker, '15, were serving. The 9th Machine Gun Battalion in which Captain Bruce M. McDill, '18, was at that time a lieutenant, also took an active part, as did the 6th Engineers of which, it will be recollected, Alfred S. Milliken, '14, had been platoon commander at the time of his death, and with which Captain Richard E. Heffler, '16, was serving as a first lieutenant.

A number of Tech men were also in command of artillery units in the sector, and one of them, Captain Joseph P. Gardner, '17, won the Croix de Guerre and his battery was given the Fourragère for the promptitude with which they got into action despite the hostile gas and high explosive shell.

Early on the morning of July 15, after a terrific bombardment, the enemy pushed across the river and gained a foothold on the southern bank. The struggle which followed is simply beyond description, particularly in the sector of the 30th Infantry. The fire of the French and American artillery fell upon friend and foe alike and in one phase of the engagement various battalions of the regiment found themselves surrounded by Germans who were attacking from both sides, endeavoring to cross the river in their front, and filtering through behind them. Nevertheless, they continued to hold, at times fighting as independent individuals or groups, but always outwitting their opponents, and scorning to accept quarter when overwhelmed. Against such spirit the attackers could make no headway and by evening the attack was utterly broken up, hundreds of prisoners and machine-guns remaining in American hands. Never again did the Germans attack; with their defeat on the Marne their last chance of victory vanished. The battle



(U. S. Official)

AN AMERICAN DIVISION EMBUSSING IN FRENCH CAMIONS FOR A QUICK CONCENTRATION BEFORE AN OFFENSIVE

was in fact the turning point of the war, and those Tech men who took part in it can well be proud of having done so.

THE GREAT COUNTER-OFFENSIVE

The German advance was now definitely halted. Marshal Foch had already arranged the counterstroke, and it was dealt with lightning-like rapidity. How quickly the plans were carried into effect may be judged by this account given by Lieutenant Joseph S. Guppy, '19, who was serving as a platoon commander in the 23d United States Infantry, 2d Division.

"July 15 found the boys doing a little pick and shovel fighting, digging reserve trenches along the Paris-Metz highway. At 2 A.M. on the sixteenth, a company runner disturbed a short snooze by punching me in the ribs and telling me to 'hop to it,' that we were to move out directly. In half an hour's time, the men had taken their turn at the rolling kitchen for coffee, and we were ready to go. We marked time in the woods until that evening, however, and then hiked about seven kilometers to Montreuil where we embussed on French camions.

"When we reached our destination it required several minutes to untangle ourselves, and as many more to collect our scattered platoons, which had been left in the custody of the 'poilu' camion drivers. The general opinion had been that we were bound for a two-weeks rest near Paris; those happy thoughts were soon dispelled. We were in the forest of Villers-Cotterets and headed toward the line. Near noon a halt was called, and we had a small, but much appreciated, amount of 'chow' consisting of coffee and 'monkey meat.' It was the first bite in thirty-six hours and the last for about the same period of time. Fighting packs were made, and we then resumed our journey toward the line in single file. The road was plugged with artillery and trucks, and on the opposite side an outfit of our compatriots, the Marines, were wading along through the mud.

THE GREAT COUNTER-OFFENSIVE

"The sun disappeared and it became inky black in the woods. In order to keep to the road it was necessary to take hold of the rifle of the man ahead. Loud talking had ceased and it was a death penalty for one who lit a cigarette, since we were nearing the lines. In this darkness a very smooth piece of detail was executed by our commanding officer. Each man received two bandoliers of ammunition and the C. O. had so arranged his place and method of distribution that we obtained it in about the same manner as an express train picks up a mail bag at a local station. It was up to us, however, to throw a wrench into the well-running machinery. At frequent intervals a message would come from near the end of the platoon, 'Pass the word the line is broken.' This time the line broke in the company ahead and we were lost. It was no less a personage than the Colonel who found us, and conducted us to our point of attack in time to jump off on schedule."

The experience of the Tech men who were members of the 1st and 26th Divisions, which were moving into position for the attack, must have been very similar to those which Guppy describes.

By the next morning practically everything was in readiness. The barrage was to start exactly at zero hour; simultaneously the infantry were to leap from the woods, and the entire success of the operation depended on whether the attack proved a complete surprise to the enemy. Everywhere officers crouched amidst the brushwood, shell-holes or the remains of trenches, glancing at the illuminated dials of their watches. Four o'clock came and went and there were no signs of suspicion. Four-twenty passed and still there was no sign. It was five minutes to zero and there was no counter-preparatory fire. One minute to zero and deathly silence; there could be no longer any doubt, the enemy would be taken utterly by surprise. The barrage fell, the infantry leaped forward.

Guppy continues, "At four-thirty on the eighteenth our artillery opened up, and hell let loose couldn't have done any better. We were half way across No Man's Land when the Boche 77's opened and picked off one of my automatic-rifle teams. Overhead the sky was filled with air bursts, and three enemy planes pounced on our lone contact machine and sent him crashing to the earth.

"Our artillery fire had wrecked the German forward positions and the enemy



KAMERAD! KAMERAD!



MORE KAMERADEN!

appeared to be too scared to offer any serious resistance. One in particular who had been hiding in a shell hole knew one word of English. It was 'Here! Here!' and he yelled it out with great gusto, with his hands high in the air. It was easy travelling to our first objective, Beurepaire Farm, except for the machine-gun bullets which clipped off the tops of the wheat and gave one a queer sensation in the pit of the stomach.

"At the ravine of Vaux-Castille we stopped. This spot was strongly organized with machine-guns, placed on both sides of the gulch and hidden by the underbrush and trees. My platoon was designated as one of several to reduce these 'nests.' It was a hard proposition since any gun we would spot and go after was flanked on each side by other guns, and ground not open to their fire was well covered by snipers. By sneaking through the underbrush four of my men managed to reach a defiladed space in front of one of the guns that was spitting continuously, and when belts were being changed they rushed. I don't believe the men in that gun crew ever realized what hit them. Directly behind this gun, which was a heavy Maxim, were two of the lighter type, and their crews just naturally hauled out when they saw what was coming. One of my corporals was an expert rifleman and he brought down several of these birds as they scurried through the woods.

"A short distance beyond was a dugout where it was possible that several of the enemy might be lurking. Having no grenades we poured a few bursts of fire from the automatic rifles down the entrance and yelled 'Heraus.' One soon emerged with his hands up and then another and then yet another until they outnumbered us ten to one. A rather decent appearing chap stepped forward, exclaiming, 'Ha, I see you are an American,' and had the audacity to tell me he had spent a number of years in our country. He expressed a desire to introduce me to one of his officers, but at that time I wasn't seeking introductions to prisoners of war. Even though they outnumbered us, they hopped to attention with great alacrity when I called 'Achtung.' One of our men who had been slightly wounded led them back toward the rear where they were organized into carrying parties for our severely wounded. The dugout contained a gold mine in the form of some cognac, besides a bite to eat which worked wonders on a very empty stomach.

THE GREAT COUNTER-OFFENSIVE

"The town of Vierzy was our next objective. We came out on the edge of the precipice overlooking the place and on about the same level as the tops of the stand pipe and church steeple. Running down the face of the cliff was a narrow road and thereby our only means of entry. There was nothing to do but chance it and we did, one at a time, twenty yards distance, all travelling a hundred yards in about ten flat and either dodging bullets or bumping into them. Our progress through that town has always been a nightmare to me. We couldn't step into a yard without meeting a flock of egg grenades or 'potato mashers' and if we kept to the street it was a bullet from a window. The men were fighting mad and due to their expert sniping and a number of bayonet parties, the enemy finally quit and were made prisoners.

"We reformed our attacking waves on the outskirts of Vierzy and were preceded by French tanks until they ran into direct artillery fire in front of Parcy-Tigny where five of them were blown to bits. Then everybody, including the C. O., figured it was time to dig in.

"We had advanced nearly twelve kilometers in as many hours, although official figures allow an average of eight for the division. The strength of my platoon had been reduced from 33 to 16. The regiment had captured 75 German officers and 2100 men, and had suffered casualties which reduced the number of officers from 99 to 37, and that of the men from 3400 to 1478."

It may be of interest to the reader to know that Guppy's work in breaking up the machine gun nest in the Vaux-Castille ravine, and in capturing the dugout resulted in his being awarded the Croix de Guerre. Another of our men who distinguished himself after the capture of Vierzy was Lieutenant Coke Flannagan, '16, who, upon June 19 worked continually under the heaviest artillery fire in keeping telephone lines from the front in working order. He also received the Croix de Guerre.

While the 2d Division which was near the center of the allied advance had been plowing ahead, the 1st Division, fighting upon the extreme left flank of the allied advance had been having an equally successful, but even more stubbornly contested career. In this division there were a large number of Tech men, including Colonel (later Brigadier General) Dwight E. Aultman, '95, who commanded the 5th Field Artillery, Major Emile G. DeCoen, '13, at that time a captain commanding a battery of the 5th Artillery, Captains J. H. Holmes, Jr., '18, Erford M. Potter, '10, at that time a first lieutenant in the 1st Engineers, and William B. Lucas, Jr., '14, Lieutenants Louis E. Wyman, '17, Lansing McVickar, '18, E. P. Brooks, '17, Robert A. Mackay, '18, Preston H. Early, '15, William S. Russell, '15, who was at that time a private in the 5th Field Artillery, and Sergeant Theodore G. Brown, '15. Practically all of these men had already taken part in the attack on Cantigny and the other early exploits of the division.

Going over the top behind French tanks the division advanced almost due east with the object of cutting the Soissons-Château-Thierry Railway. The enemy were taken completely by surprise; the assaulting battalions travelled no less than two thousand meters in the first sixty minutes and in so doing cut their way through the 6th, 11th and 12th German Divisions. The town of Missy was carried by storm, and the 16th and 18th Infantry on the right continued for some distance at little reduced speed.

To the left of the 1st Division was the 153d French. These troops had to fight their way across a succession of steep ridges and ravines leading down to the Aisne River, and flanked from the North by German guns beyond that obstacle. As a result this division had been greatly slowed down and the American left flank was correspondingly exposed. The fire from the heads of these gorges became so heavy that the 26th and 28th Regiments of the 1st Division were obliged to turn aside and fight their way into the ravine leading north from Missy, and by this means silenced some of the guns. The fire from the ravines ahead, especially that north of Ploisy, continued so terrific, however, that it was impossible to get forward.

Next morning the Americans, aided by French tanks, again assaulted. The fight which followed was terrific. A platoon of the 1st Engineers commanded by Lieutenant E. P. Brooks, '17, had been ordered to aid the tanks and was so effective during the early part of the engagement as to win the highest commendation from the French

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commander. Now, however, they beheld the great machines which they had helped forward with such labor suddenly caught by point-blank artillery fire and blown into the air before their very eyes. In spite of the loss of the tanks the Americans pressed on. It was here that Captain Holmes lost his life, and won the Distinguished Service Cross, when after having bravely led his men in three attacks he was killed in the fourth while charging a machine-gun. Ultimately, such spirit was too much for the enemy; the head of the Ploisy ravine was carried, and the division found itself in possession of its first objectives.

Early in the morning of the twentieth the attack was renewed. There followed one of the bloodiest days in the history of the American Army during which, hour after hour, ground was taken and retaken, while the fight went on in the fields and hedges with bayonets, clubbed rifles, trench knives, and fists. By the morning of the twenty-first practically all the officers of the 2d Brigade had been killed or wounded, but General Buck reorganized the remnants of his command including portions of the 1st Engineers and led them in one final assault which carried the town of Berzy-le-Sec and cut the railway. Altogether, the division in these four days' fighting had suffered over 7,000 casualties of which not a man had been captured. It had taken 3,500 prisoners including 125 officers, and 68 field guns of all calibres. It had advanced 11 kilometers in four days against the most desperate resistance and had beaten its way through seven German divisions, a number of them rated as first-class units. As a feat of arms the history of the American Army contains few parallels and those of our men who took part in it may well be proud.

Further south, the 26th Division, including as we have already seen a number of Tech men, was also engaged. Their advance was as fiercely contested as was that of the First and Second but no part of it demanded more desperate fighting than the storming of Hill 190 by the 1st Battalion of the 103d Infantry. This organization jumped off from Bois de Belleau, crossed the brook beyond and fought its way up the slopes of the hill, which were swept by machine-gun and artillery fire. One of those in the first wave was Lester A. Williams, '17, a member of Company C. The losses were heavy, but a few minutes after the jump-off Williams found himself at the top of the hill unscathed. Of Company C, however, which had consisted of two hundred and fifty men, nearly all from the same home town, there remained but twenty-two to answer the roll call.

SECTORS QUIET AND OTHERWISE

Preparations were soon in hand for the great drives at the St. Mihiel salient and the Argonne. Roads had to be built, light railways laid, water-pipe lines installed; emplacements were constructed and carefully camouflaged for the heavy guns which were to add weight to the expected offensives. This work was difficult and somewhat dangerous since any deficiency in camouflage discipline was likely to result in a sudden deluge of annihilating fire by hostile counter-battery guns. One of our men in the camouflage corps, Sergeant Mark W. Reed, '13, states that during this period he did nothing but preach "Conceal, or yours may be the Kingdom of Heaven."

At times the work had its ludicrous side. Captain Harold Connett, '18, says, "My d but on the line was 24 cm. centimeter railway guns on a quiet sector northeast of Nancy in the forest of Champenoux. Each gun with its ammunition wagon was brought into position at night after camouflage screens had been erected over the emplacements. As we were about a mile and a half from the front line the fires in the locomotives were kept banked so as not to betray our movements by sparks. But all precautions were in vain! The camouflage on the fourth gun position had been constructed an inch or so too low and as the engine came beneath it a piercing shriek rent the stillness of the night. The wire had caught the whistle and pulled it wide open. We got it shut after some five seconds, but I fear that if any of the squareheads were awake they must have had a pretty fair idea as to what was on foot.

In the St. Mihiel offensive 225 Tech men are known to have taken part, and several won distinction. Captain Tom W. Saul, '10, received the Distinguished

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Service Cross for his coolness in bringing his tanks over the fire-swept ground near Mont Sec.

At the close of the operation troops were withdrawn to take part in the Meuse-Argonne offensive and those which remained were at all times outnumbered, especially in the matter of artillery, with the result that in some units the most serious casualties occurred, not during the offensive, but during the period of reaction which followed. It was at this time that Captain Herbert W. Hall, '12, received the Distinguished Service Cross for his courage and perseverance in repairing narrow-gauge railways under fire at a point near Thiaucourt, which subsequently became known as Dead Man's Corner. Speaking of the incident he says: "Lieutenant Plimpton was just turning to say something



A DETACHMENT OF THE FIRST ENGINEERS COMMANDED BY E. P. BROOKS, '17, CUTTING THEIR WAY THROUGH THE WIRE AT ST. MIHIEL, SEPTEMBER 12, 1918. THE TOPS OF THE POSTS WERE BEING CHIPPED BY MACHINE-GUN FIRE WHEN THE PICTURE WAS TAKEN

when one of the big shells landed hardly twenty yards away. The crash was terrific. One splinter struck Plimpton in the back, severing his spinal column. Another struck the corporal in the face, tearing off one side of his head. Both men were killed instantly. For a second I was dazed. I could not make up my mind whether I was dreaming or not. I ran up and made certain that nothing could be done for them, and then went on with the work though it was more difficult than ever to keep the men steady. By the time we had finished that night there had been ten men killed at this fatal corner."

Another Tech man in writing home about the same time makes the statement, "The Boche Artillery is good. Especially its work with planes is very good. During the first rush it punished us little, but since then each day we have learned to respect it more. Their machines fly as a rule in teams which work well together, but their observation planes often come over alone. They fly right down, inviting fire, — anything to find out where you are. Sometimes you bring them down — if so, good. Otherwise in about an hour s-s-s-bang! They know the roads, the springs and the observation-points. They know what points we must occupy and pretty nearly when we must go to them and it is a tough proposition."

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THE MEUSE-ARGONNE

The memory of the Meuse-Argonne is dear to every American soldier's heart. It is to him what Gettysburg is to the veteran of the Civil War. The very name serves as a reminder, a memorial as it were, of the unselfish devotion of comrades living and dead. It was a time of self-sacrifice and of comradeship such as few Americans have ever been privileged to experience. It was a time when death was a member of every company and when his presence came no longer to be especially dreaded. It was a time when petty jealousy, personal ambition and rivalry were slowly washed away in the blood of heroes; those who survived to the last days were able to catch a glimpse of what our nation and perhaps the world might be if all men could lay aside their individual interests and work as brothers for the common good. It was a vision such as few of us had imagined. It was one which we hope may never be entirely lost.

The mission assigned to the Americans was to advance toward Sedan, and thus to cut all lines of retreat to the eastward before the German Army in the neighborhood of Laon and Cambrai should have time to withdraw. As a pathway for this advance the more or less open plateau between the Forest of Argonne and the Meuse River was selected. This stretch of country presented few natural obstacles. It possessed, however, one source of immense military strength, for on the east it was overlooked and commanded by the Cotes-de-Meuse, while from the west it was equally dominated by the heights of the Forest of Argonne. To make the problem still more difficult, in the very center of the pathway rose a high isolated hill, Montfaucou, which commanded a view from the valley of the Aire to the valley of the Meuse, and from the Forges Brook in front of the allied lines to the Bois-de-Gesnes, some twenty kilometers to the northwest.

There were two possible methods of passing through this defile: first, the Forest of Argonne and the heights of the Meuse might have been seized, after which the American Army could have passed through to Sedan practically unopposed; second, the Argonne Forest and the heights of the Meuse might be neutralized by artillery fire, while the infantry rushed through the gap. For the purpose of Marshal Foch, namely, to take Sedan in time to cut off the retreat of the German Army, the former method was out of the question and the latter was that actually attempted.

The entire scheme had the audacity of genius, and save for the miscarriage of certain details might have resulted in the greatest victory the world has ever seen. The first day's program failed. As a result the second day's program became impossible. Before the evening of the third day the German re-enforcements arrived and the affair from that time on became a ferocious and sanguinary struggle with the combatants on nearly equal terms. The nature of the contest can best be surmised from the words of General Pershing's report, in which he says: "The demands of incessant battle which had been maintained day by day for more than a month had compelled our divisions to fight to the limit of their capacity. Combat troops were held in line and pushed to the attack until deemed incapable of further effort because of casualties or exhaustion; artillery once engaged was seldom withdrawn and many batteries fought until practically all the animals were casualties and the guns were towed out of line by motor trucks."

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At about noon on September 26, a certain Tech man and a French staff officer emerged from the entrance of a dugout near the Moselle. The Tech man shook himself, blinked his eyes and remarked that it was good to get away from the endless jangling of the telephone and to be once more in the open air. The French officer smiled, and touching the American on the shoulder said, "Listen!" He did so and became conscious of a sound, a faint sound, yet curiously distinct and all-pervading. It was not exactly like breaking surf, nor distant thunder, nor the roar of a great waterfall, yet it was like all three. The Frenchman waited for a few moments and then said, "My friend, in my life I have heard that sound but once before. In February, 1916, I stood in this same spot and heard that same sound. The sound which I heard then was the cannonade which opened the great German attack on Verdun. The sound which you hear now is the cannonade of your own army advancing into the Argonne."

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(Credit Underwood & Underwood)

THE ARGONNE TRAIL

In the foreground is Montfaucon and its ruined church. The first dark streak of brush beyond the cloud shadow is the Bois-de-Beuge. The faint patch of woods to the right is the Bois-de-Cunel and the Bois-de-Bantheville.

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The French captain was right, for at 5:30 on the morning of September 26, the Infantry of nine American divisions, that is to say, approximately 150,000 men sprang from their trenches, and under one of the most tremendous barrages ever laid down started across the shell-pitted No Man's Land north of Verdun. These divisions reading from right to left were, the 33d, 80th, 4th, 79th, 37th, 91st, 35th, 28th and 77th. Among them were 59 Tech men, divided as follows: 33d, 5; 80th, 7; 4th, 7; 79th 8; 37th, 2; 91st, 6; 35th, 2; 28th, 5; 77th, 17, while as corps or army troops and in the air service, 239 other Tech men were rendering assistance.

The 33d and 80th Divisions moved forward with little difficulty. The 4th Division also advanced rapidly throughout the forenoon. As they continued, the going became more difficult, for the division to their left was not keeping up. Still they got on fairly well until they had reached the town of Septsarges northwest of the German citadel at Montfaucon, whence fire began now to take them in flank and rear. Nevertheless they pushed on, sweeping through the Bois-de-Septsarges, reaching the day's objective and bringing their left flank to a position on the bare hillside east of Nantillois. Here they lay utterly exposed to every variety of fire, separated from the nearest support by something like four miles and suffering very heavily. The natural tactics of the Germans would have been to attack this exposed flank from the rear; that they did not do so successfully seems to have been in part at least due to the 10th Machine-Gun Battalion commanded by Major Francis R. Fuller, '12.

The battalion had originally been in position on the famous Hill 304 near Esnes, and by firing a barrage of machine-gun bullets had aided the division materially in its rapid advance. As soon as it was seen that all was going well, the battalion was ordered forward, carrying its guns and ammunition by hand, past Montfaucon around Septsarges, and finally into a position on the hills north of that place from which it could protect the exposed flanks of the infantry. For the next twenty-four hours its guns were in almost constant action.

The ammunition consumed was enormous and, had not the supply service of the division been exceptionally well organized, the supply might have run short. The Assistant Chief of Staff, G-1 of the 4th Division, however, was Lieutenant-Colonel (later Colonel) Edward Canfield, Jr. '12. In the citation accompanying the Distinguished Service Medal which was subsequently awarded Colonel Canfield, it is stated that "He proved himself to be an officer of the greatest administrative ability, exceptional foresight and tireless energy." He had personally trained the entire personnel connected with the supply system of his unit, and as a result its combatant troops were never short of ammunition or rations.

The division to the left of the 4th was the 79th. Captain L. E. Knowlton, '16, at this time commanding the machine-gun company of the 316th Infantry, gives this account of what occurred: "It seemed as if the whole world behind us was a chaos of leaping flashes and thunderous detonations. Luckily the German reply was feeble, and our troops were deployed and started with very few casualties. My regiment was to follow the 313th Infantry in reserve at one thousand meters on the left of the division sector.

"During the first day we had to cross a desolate and barren waste — a four-years No Man's Land; during five-hours steady advance we saw not a sign of trail or road. Beginning at what had been their front line, the Germans had scattered snipers and machine-gun crews through the underbrush, in shell holes and in concrete pill-boxes to delay us while stronger defenses were organized farther to the rear. The attacking troops disposed of most of these without stopping until they neared the German line of resistance near Malancourt. Here, with the aid of French light tanks our infantry, despite heavy casualties, finally wiped out the machine-gun nests, and the advance was resumed to within striking distance of Montfaucon when darkness fell."

The 79th Division had put in a day's fighting which under ordinary conditions would have been considered brilliant, but under the particular conditions of this attack it proved fatal. Evening had come and Montfaucon had not been taken. The plan had demanded that it should be carried the first day, and so confident was the staff that it would be taken that all arrangements for transportation of supplies and movement of

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cannon had been based upon the theory that the roads which radiate from Montfaucon, of which there are no fewer than eight, would be available. The American front line had now advanced from five to eight kilometers; its artillery could no longer give support until the guns could get forward across the quagmire of No Man's Land. Even then the ammunition supply would be limited, since the great road center of Montfaucon was still in the hands of the enemy.

The situation can be gathered from some notes taken by Captain George C. Danforth, '03, 602d Engineers, U. S. A., who followed the 5th Corps, which formed the center. "The attack went over at 5.30 A. M. September 26, with the Corps Engineers in Avocourt, and the night of the twenty-sixth found the Infantry held in front of Montfaucon and Cierges, and the guns having great difficulty in advancing to their support. The following notes are taken from the official records of the 5th Corps Headquarters: 'September 26. At 9.10 A. M. the 79th Division in north of Bois-de-Montfaucon. At 12.00 M. 91st Division takes Véry. 79th south of Montfaucon. At 1.30 P. M. right of First Corps held near Cheppy, and 79th Division by machine-guns near Montfaucon. At 2.30 P. M. forward movement of artillery and supplies delayed by badly cut-up roads over No Man's Land. At 5.00 P. M. aviation reports roads blocked with traffic, bridges destroyed. At 6.30 P. M. road north through Avocourt reported open for animal transportation one and a half kilometers north of Avocourt. Great road congestion reported all along corps sector.

"September 27. At 5.30 A. M. attack continued. At 11.20 A. M. 79th still held by machine-gun nests south of Montfaucon. Roads clogged with artillery and ammunition going north. At 1.20 P. M. shortage of ammunition and impossible to get it over roads in present condition. Using pack animals. At 3.00 P. M. troops in Montfaucon.'

"It was fortunate that the enemy did not apprehend heavy troop movements through Avocourt. The roads to the north existed only on the map, having been under four years of shell fire, and for over two kilometers were nothing but mud, shell holes, trenches and wire. Back of the German main line of resistance, there were remains of roads, but the Boche used 60-centimeter railroad for supplies, and paid little attention to keeping up highways, although mines and other obstacles were left as he retreated. Some of the mines were found and removed by the engineers; some exploded, the craters forming serious obstacles.

"Road material (rock) had to be obtained from any source available; it was carried on wagons, pack mules and stretchers formed of two poles with canvas between. In the woods to the north the ground was badly cut up and soft, and about a kilometer and a half of road was built of double layer of two-inch plank which had been used as dugout lining by the Germans.

"During the entire period the Boche had control of the air and used bombs and machine-guns from low altitudes. The work was under shell fire most of the time, our regiment having its first casualties in this offensive on September 24."

As it was impossible to bring up 75's, the long 155's of the Coast Artillery were used, and after a bombardment by these, the 79th succeeded in storming and holding Montfaucon about 10.00 o'clock on the morning of the twenty-seventh. The town was actually carried by the 313th Infantry among whom it is known were Corporal Seligman B. Austrian, '10, and Malcolm B. Brownlee, '11. Their regiment was now relieved by the 316th. Captain Knowlton has again given us some account of what occurred. "Soon after dawn the assaulting waves were sent out across the plain extending northward from Montfaucon. About a mile and a half from our starting point was a little patch of woods (Bois-de-Beuge). Just as the battalions had deployed the Boche came to life. Then for the first time our men saw comrades fall; for a space of perhaps twenty minutes the greater part lay crouched in shell holes, terrified and dazed, uncertain whether to go forward or back. At last Major Harry D. Parkin, commanding the 1st Battalion, seeing that his first wave was fast approaching the woods from which the machine-gun fire was coming, gave the order to advance and strode stolidly forward himself. With him went his own battalion, walking in zigzag lines while shells burst all round.

"The 3d Battalion on our right, which had already lost two of its captains, saw its

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(U. S. Official)

THE TANKS WITH WHICH GEORGE N. ALTHOUSE, '15, WAS ADVANCING WHEN MORTALLY WOUNDED NEAR NANTILLOIS

major killed and a third captain badly wounded, but nevertheless encouraged, perhaps by our progress, it moved forward with us. The first ridge was soon gained, but before us stretched an open field with another ridge (Hill 268). The lines were quickly reformed and pushed forward, for now our scouts could see the Boches running before them. This time there was little artillery to delay the advance, but for some time the machine-gun nests in the woods and behind the ridge made progress slow. They were finally cleaned out and the 1st Battalion moved up to reorganize under cover of the woods.

"Then came my machine-gunners' turn. For three days they had carried their heavy burdens, striving to keep up with the fast-travelling and more lightly-burdened riflemen with never a chance to get back at the Boches, who were picking them off in ever-increasing numbers. Suddenly about one thousand yards away along the foot of the hills about Romagne a battalion of Germans appeared in the open, and moved toward us in rather close lines — the heaven-sent machine-gun target! We opened up on them until they began to scatter and seek cover and then ceased firing, hoarding our scanty supply of ammunition.

"In advance of us now was a valley and across it a wooded slope full of *minenwerfers*, machine-guns and even 77's (Hill 250). With apparently no support on our flanks we dared not move farther. Late in the afternoon four large tanks lumbered out from our lines toward the northeast, where lay the Bois-des-Ogons in which the 80th Division fought so desperately later on. One lone infantry platoon followed these tanks, but, seeing two of them hit by shells and set on fire, retreated, causing us no little apprehension, for in the gathering dusk we were uncertain whether these men were friends or enemies. That night we formed to resist counter-attacks and tried to get a little sleep in the midst of a cold rain and Boche shells."

This "lone platoon" was what remained of Company H, 315th Infantry, and with it was Lieutenant George N. Althouse, '15. As the detachment moved over the top of the hill it was greeted with a storm of machine-gun bullets and direct artillery fire from the outlying patches of the Bois-des-Ogons, and Lieutenant Althouse was mortally wounded.

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His orderly succeeded in getting him to a dressing station from which he was removed to a field hospital, but he expired a few days later.

In the meanwhile an equally hard struggle had been going on to the westward. On the extreme left the 77th Division found itself in an inextricable tangle of barbed wire and blackberry bushes in the Argonne Forest. The 28th, to their right, were obliged to advance with their left flank traversing the deep ravines of the Argonne escarpment, while their right worked along the valley of the Aire, which was commanded by the heights on both sides. The 35th was in a similar position on the opposite side of the river, its left being in the valley and its right upon the heights. These three divisions were under orders of the 1st Corps, and the corps engineer troops were the 111th Engineers commanded by Colonel Horace Baker, '03. The chief difficulties encountered were mines and craters, but these were rapidly bridged or detoured. Around the edges of the larger craters the Germans had placed mines which were not discovered till a gun and its crew were blown up by one of them but the engineers quickly located and removed the remainder. By evening of the twenty-sixth the road to Varennes was open for general traffic.

Thanks to the rapid repair of the roads, the artillery was able to keep well forward. Each infantry regiment was supported by a battery which advanced as rapidly as possible, sometimes even to the front line in order to counteract the direct fire of the enemy's cannon and to break up their machine-gun nests.

One of the batteries selected for this work was Battery F of the 109th Field Artillery commanded by Captain Thomas H. Atherton, Jr., '09. Atherton's account of the affair follows: "We got as far as Petite Boureuilles in good time, but were held up there while the engineers who were travelling with us filled in and bridged the German trenches. Here many tanks had come to grief in shell holes or craters. We were soon in the open, and as the smoke and fog lifted we began to draw fire; a couple of hundred yards in front of us our infantry were lying flat under a shower of rifle and machine-gun bullets. By quick work the men unhooked our horses and got shelter just off the road on the bank of the Aire. To our left front tanks were working along the edge of the forest; across the



(U. S. Official)

HEAVY ARTILLERY OF THE 28th DIVISION SUPPORTING THE INFANTRY FROM THE RUINS OF VARENNES, SEPTEMBER 28, 1918. THE GUNS HAVE JUST FIRED A SALVO

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river another group was manœuvring, resembling a flock of ducks waddling along in single file. There was great activity in the air, and several of our observation balloons came down in flames. Toward evening we passed Bourcuilles and bivouacked on the road to Varennes.

"The next morning, leaving the battery with Lieutenant Lyon, I rode on to Varennes. It was a bad day for our infantry, and when I found Colonel Miller of the 110th he seemed very glad to know we were coming up. He directed me to General Darragh's headquarters. The General said the battery should not have come farther than Varennes, as our infantry to the left was not up. I started back and encountered another battery which was returning. I did not want to lose my guns, but I did not wish the infantry to see us turn and go back, so we did not. About dusk we occupied the emplacement of a German battery; the guns were still there, as well as boiled cabbage, clothing, boots, blankets and instruments. Our mechanics cleaned and repaired one of the German 77's, and in the morning we opened up with it, firing German gas shell.

"We remained here a day and then moved forward beyond Montblainville. We went in daylight over an exposed road, but by taking the exposed part on the gallop, one platoon at a time, we got to our new position safely. While in this position Lieutenant Grubbs was killed, also my orderly, John Bake, and Lieutenant Lyon were wounded."

In the meanwhile the 35th was fighting its way along the opposite side of the valley and the 91st was ploughing through the Bois-de-Cheppy. Although a number of Tech men and Harold H. Burton, son of Dean A. E. Burton were in the 91st, no detailed accounts are available. What occurred to the 35th, however, has been recorded by Colonel T. C. Clarke, '93, commanding the 110th Engineers, who says in part: "When the assaulting troops went over the top on the twenty-sixth the engineers were held back until the infantry had advanced about a quarter of a mile. The intense artillery preparation had forced the Germans back to their second line, so that the first seven kilometers were covered rapidly and a report came in from my battalion on the left that they were in the town of Bourcuilles opposite Varennes. The commander of the right battalion had a harder task and was still in No Man's Land at noon.

"There had been a heavy fog all morning, but the sun broke through just as the infantry were in front of the hostile line of resistance and they were subjected to merciless fire which cost them a number of their high officers. Nevertheless they eventually took the line, including the town of Cheppy. The following day they again advanced, taking Charpentry, but received heavy punishment in so doing, as our artillery had been unable to keep up with them, and they were exposed to most terrific fire from the Germans. The third day the infantry units were badly scattered; I should say a majority of the higher officers were out of action and the junior officers commanded groups — sometimes of their own and sometimes of other companies. On this day the infantry got as far as Exermont, my regiment of engineers acting as Division Reserve."

Up to this time the advance of the 35th had been brilliant, for Exermont was several kilometers beyond any other point held by American troops, but to hold this position appeared to the division commander impossible. The infantry were practically demoralized, and Colonel Clarke was directed to organize a line of resistance which his regiment, with the aid of machine-guns, could hold while the scattered remnants of the infantry retired through it. The position selected appears to have extended from the Aire River to the woods near Eclisfontaine, stretching in a salient along the crest of Baulny Ridge. Colonel Clarke says: "I picked the crest of a hill, and put the men in shell holes, either natural or artificial; I might add that there was very little digging to be done — the natural ones were being dug for us. I had about eleven hundred rifles on the line and the liaison, which had very generally broken down because of the telephone wires being cut, was still effective in my own case because we relied on couriers — either mounted men or motorcyclists.

"I was notified of a counter-attack being planned for 5 A. M., but it proved only a demonstration. At eleven o'clock a counter-attack of strength was lodged against us, but by this time I had a telephone in and could direct the artillery. We inflicted heavy punishment on the Germans, who never got within three hundred yards of us. After about

THE SECOND ATTACK

three-quarters of an hour the Germans broke and took cover in the woods, where the Artillery shelled them.

"My regiment suffered 260 casualties, but was extremely fortunate to get off with that. The Germans on the last night shelled us with mustard, but as it was bitterly cold and rainy the gas hung close. The next morning we were relieved by the 1st Division, and the regiment that occupied our shell holes had 500 casualties before ten o'clock."

THE SECOND ATTACK

The first phase of the Argonne had now come definitely to a close. The Germans, by withdrawing from their front lines before the artillery preparation, had suffered small losses, while those of the Americans had been very severe. By this time the American intentions were quite evident, and hostile re-enforcements had been brought up. Already the delay in the American advance had been so great as almost to destroy any chance of a really decisive action. It still seemed possible, however, that, exhausted as the Americans were, their opponents might be in a worse condition; accordingly certain of the American divisions, namely, the 37th, 79th and 35th were withdrawn and were replaced by the 32d, 3d, and 1st, in which one, five and seventeen Tech men respectively were serving, and a new advance was ordered. General Pershing in his report says: "At 5.30 A. M. on October 4 the general attack was renewed. The enemy divisions on the front from Fresnes-en-Woevre to the Argonne had increased from ten in first line to sixteen, and included some of his best. The fighting was desperate, and only small advances were realized, except by the First Division on the right of the First Corps." What this means can be appreciated when one realizes that on this morning some eighty-thousand Americans marched over the crests of the hills, or out of the brushwood which had sheltered them, to be met with a murderous blast of machine-gun fire from the front and artillery fire from both flanks. Generally speaking, they crossed the first ridge, worked down into the valleys beyond, and there, exhausted and with half their number casualties, dug in.

The day was a creditable one for the Institute. Lieutenant Percy A. Rideout, '11, in particular won distinction. Rideout had originally been a member of the 101st Engineers of the 26th Division. He had later transferred to the 1st Gas Regiment and was placed in charge of a battery of Stokes mortars. For the attack on the fourth he was ordered to take up a position near Cierges and assist the 3d Division with smoke screens, and by thermit and phosphorus bombs. During the night of October 3 he made a reconnaissance far in advance of his own front line; although knocked down several times by bursting shells, and under constant machine-gun fire he located a great number of hostile machine-guns. Next morning, in unison with the Artillery, he opened fire, destroying them with great rapidity. His position was heavily shelled from almost the first minute. Nevertheless his battery succeeded in carrying out its mission, and for four days thereafter, though constantly bombarded by artillery and on some occasions fired into by machine-guns, they continued to aid the advance of the Infantry. On October 8 preparations were made to lay a smoke screen to cover the attack against Bois-de-Cunel. Rideout gave the necessary orders and then took a detachment to the rear to bring up ammunition. The little party — seven in all — had almost regained the battery with their load of bombs when a shell exploded in their midst, killing Rideout and wounding five others. The barrage, however, was laid in accordance with his orders, a foothold was gained in the outlying sections of the wood, and the next day the entire position was cleared. For his splendid courage throughout the affair Lieutenant Rideout was posthumously awarded the Distinguished Service Cross.

Lieutenant Lansing McVickar, '18, of the 7th Field Artillery, also won the Cross by bringing a cannon forward in support of the Infantry. Although he lost two horses and several men, he continued until he encountered a hostile artillery barrage which forced the party to take cover. Nevertheless McVickar left this position of comparative safety on five different occasions to bring in wounded companions.

Owing in part to the spirit of men like McVickar and in part to the character of

TECHNOLOGY'S WAR RECORD

the ground, the 1st Division advanced somewhat further than the rest of the line. Their immediate front as far as Exermont was bare of cover and gently rolling, and they reached forward with great rapidity, though suffering from artillery fire from the heights of the Argonne in and around Châtel Chéhéry. By nightfall they had achieved an advance of over four kilometers — a feat repeated upon the next day against positions in wooded and brushy country — nor did they cease to advance until October 10. By this date they had penetrated the enemy's lines along their entire front to an average depth of six kilometers, but they had sustained losses amounting to more than nine thousand men, that is to say, over one-half of their total rifle strength. A number of Tech men took part in this affair, but it is impossible to obtain any very detailed account of their experiences, although it is known that Lieutenant E. P. Brooks, '17, aided in the attack on Hill 269, and the



(U. S. Official)

FIELD ARTILLERY SUPPORTING THE INFANTRY AT CLOSE RANGE. SIXTH FIELD ARTILLERY NEAR EXERMONT, OCTOBER 4, 1918. A SHELL HAS JUST BURST, AND ONE MAN IS ALREADY WOUNDED.

defense of that position against the desperate counter-attacks of the enemy, and it is believed that Lieutenant T. W. Ryan, Jr., '17, had a hand in the same affair.

Some idea of the fighting may be gained by a consideration of what was occurring somewhat to the left in the sector of the 28th Division. The diary of Captain Atherton runs as follows: "Took part in a big shoot at 1.40 A. M., then reported at regimental headquarters and was told that 'F' Battery would again go forward as infantry battery. Sent for limbers, but the men were somewhat scattered and they did not arrive until daylight. Fortunately there was still some smoke and haze. Limbered up under fire; shelled all the way to Apremont, many horses wounded and several men. Reached Apremont, took the first platoon, left the second to Willey, a new lieutenant. Colonel Miner assigned us a position on a road on the crest, with a line of machine-guns and infantry. Were in full view from all German territory, and from the first under hot fire from machine-guns and one-pounders. Kubelus, Janis and I served the second piece; most of the crew had been gassed on the way up. We pulled the gun behind a wrecked tank which gave some cover from the machine-gun fire from the left flank. Then came a shower of H. E.'s

THE SECOND ATTACK

and finally gas. There were about a dozen hits in a radius of fifty yards; one buried my maps and instruments. Gus Laning was hit. Things were as bad at the other platoon. The Colonel was wounded and Lieutenant Willey, who was replacing Grubbs and Lyon. I got off eighty-four rounds with the first platoon and later forty-four with the second. The road we occupy is littered with German and American dead, two wrecked tanks, uniforms, guns, equipment and filth. October 5 — Pulled guns off road just before daylight and put them under cover of some brush where they do not show. Have not been shelled so much today. The infantry company left — mostly gassed — so we have their pits in the bank and are more comfortable, especially as they abandoned their arms, equipment and blankets. Tried to bury Healy, who was killed on the road, but the shelling was too hot. 4.25 p. m.—Tried to help a wounded man in with litter and Germans immediately opened fire with a one-pounder. October 6 — Nothing to do but hug the ground and hope. It is a torment — no use denying it. Corporal Randall and Sergeant G. Janis wounded during afternoon. October 7 — Fired for an hour starting at 7.30. Sergeant Benny Taylor killed, cut all to pieces by a shell. Corporal George Bowen wounded. The 2d Platoon stuck to their pieces, though it looked like suicide, till they got 'cease firing.'"

During this day Etheridge's battery fired to support the attack of the 28th and 82d Divisions against Châtel Chéhéry. The infantry, particularly that of the 82d Division, was obliged to advance over the flat plain of the Aire Valley practically devoid of any kind of shelter, to cross an unfordable river to carry a town thoroughly organized for defense and finally to storm the almost vertical cliffs of the Argonne escarpment. In this struggle and the days which followed another Tech man won fame. Major Harold Blanchard, '02, of the 327th Infantry, although suffering from severe bronchitis as a result of having been gassed, continued to lead his battalion, and when all the officers of one of his companies had become casualties, he himself took charge of the company and led it to its objective in spite of artillery and machine-gun fire. Although suffering severely he maintained command of his unit for fourteen days, collapsing when his battalion had been relieved. For his gallantry he received a well-earned Distinguished Service Cross.

After the attack of October 4, it was evident that the plan to break through could scarcely hope to succeed. Nevertheless the American divisions continued to force their way forward foot by foot. Thus from October 4 until October 12 the 3d and 80th Divisions cut their way toward the Kriemhilde Line. How fierce was the struggle can be realized only by actually seeing the ground, but some idea of it may be gained from the fact that when the combined operations of the two divisions had isolated the Bois-des-Ogons, a little patch of woods scarcely half a mile square, there were found in it more than 150 machine-guns, besides a plentiful supply of *minenwerfers* and a quantity of artillery. A number of Tech men were serving with the Artillery of the 80th Division during this operation, but no detailed accounts of their actions are available. We also know comparatively little of what happened to Tech men in the Third, but it was during this fighting that Lieutenant Richmond Young, the only son of Harry H. Young, '91, was killed while endeavoring to lead his platoon around the western edge of Bois-de-Cunel.

The nature of the fighting during this period can perhaps best be compared with that of the Wilderness Campaign of our Civil War. There was no front line, and little groups of men held out for days, entirely surrounded by the enemy. Small patrols felt their way through the brushwood, sometimes stumbling upon the enemy and sometimes finding no one. A typical adventure befell a member of the class of 1917, serving in the 32d Division, who says, "We crossed several fields thick with shell holes, and in every other hole was a dead Boche, evidently caught as he was retreating. Finally we came to the Gesnes-Romagne highway, which the enemy was covering with indirect machine-gun fire. We found an American moaning in the middle of the road, apparently with a bullet wound in his lung. We carried him to one side where he would not be so likely to be hit a second time, but could do nothing more for him. At the edge of the woods we found an American lieutenant. Fortunately he had a map. Yes, Transvaal Farm was only a few hundred yards away, just around a corner of the woods. 'But, man,' the lieutenant said, 'they can't mean that you should mop up Transvaal Farm. We just barely have a

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foothold here. The woods around the farm are thick with Boches.' Not satisfied with his report, I foolishly thought that I should see for myself.

"Just as we appeared at the corner of the woods, crack — crack — crack, — apparently Boche snipers right in the farm buildings. Once in the farm buildings, it might be possible to clean them out, but it was quite evident that an American could not cross the open space between us and the house. There were scores of Boche shacks along the edge of the woods around the clearing; if they were not occupied, it might be possible to get at the farmhouse from the rear.

"I borrowed a rifle and bayonet and picked one man to go with me. Leaving the other men in a reasonably safe hole, the two of us started along the edge of the clearing. With bayonets fixed, rifles at 'ready' and fingers on the triggers, we went through shack after shack, occasionally coming to a small dugout which we had to make sure was clear. It was quite evident from the manner in which equipment was strewn around that the Boches had been in these shacks only a short time before. Underbrush prevented us from seeing more than fifteen or twenty feet. Not knowing when we might run onto the enemy we moved on tiptoe, scarcely making a sound and increasing our caution as we advanced. If ever a man sweat blood, I think I did then. My knees shook, and my hands were so moist that I could scarcely hold my rifle. I suppose the man with me felt the same way, and I think either one of us would have run had it not been for the other.

"Finally we came to a sunken road. We lay quiet at the edge of this artificial ravine and listened. We could hear voices beyond the other bank, but I could distinguish no words. I told my companion to stay where he was; I would dash across the ravine, and if all was clear, I would signal for him to follow. As I jumped up the path on the opposite side I saw a Boche not fifteen feet in front of me. He was a little fellow, wearing the round gray cap with the red band; I could hear his boots clatter on the ground as he swung around to face me. In his right hand was a potato-masher and he was just reaching with his left to jerk the string. I pulled the trigger of my rifle and ducked.

"I had the sense to jump to one side before I clambered back on my side of the road and dropped into a hollow under a bush. I had scarcely hit the ground before a machine-gun just across the ravine opened up and made me squirm into the dirt. All the machine-guns on the ridge to the left picked up the rat-tat-tat-tat-tat. Jerry must have thought a general attack was coming over.

"It was several minutes before things quieted down enough so that I dared move. I looked for my comrade but could find him nowhere. I started toward our line and had gone back possibly halfway when I saw a Boche ahead of me. He was kneeling against a tree, facing our lines, and he held a rifle. 'Sniper,' I thought. I might have shot him but I did not dare give an alarm. I went up to him on tiptoe and slipped the point of my bayonet over his shoulder. He did not move. I looked over his shoulder so that I could see his face. He was dead.

"Believing that I had lost my comrade, I made my way back to the hole where I had left my men. To my great relief my companion hailed me with the exclamation, 'I never expected to see you again.' I asked him if I had gotten the Boche. 'Well,' he said, 'he did not throw the grenade.'"

THE THIRD ATTACK

The American forces were now in contact with the Kriemhilde Line and on the morning of the fourteenth another general attack was ordered. Though many Tech men participated in the affair, few have given any account of it. Lieutenant Fred D. Mendenhall, '14, of the 7th Engineers, in a letter to Professor Spofford says: "On October 14 we went over the top with the Infantry, our mission being to put footbridges over a small stream when they arrived there. However our barrage did not destroy the enemy machine-guns, and the machine-gun and counter-shell fire was so terrific that most of our men were killed or wounded before we could gain our objective."

A few days later Mendenhall highly distinguished himself by wiring in the outpost line of the 5th Division. The position, which was on an exposed ridge north of Cunel, was

TRANSPORTATION

to-general of military railways, United States Army. His duties were enlarged to include not only the organization of railway troops, but also the procurement of equipment, supplies, machinery and floating equipment connected with the transportation service abroad. At the time of his appointment he moved to Washington and made his residence there until February 15, 1919, when he returned to Chicago, having been relieved from the service at his own request on December 31, 1918.

A general idea of the amount of work that was handled by Mr. Felton may be gained when it is realized that 83,181 officers and men were organized in the Transportation Corps and actually in service, and an additional 49,768 had been authorized at the time of the armistice. Up to that date there had been purchased 3,750 standard-gauge locomotives, 1,547 light railway locomotives, 91,519 standard-gauge cars and 8,530 cars for the light railways. Of this number, 1,395 standard-gauge locomotives, 406 light railway locomotives, 19,163 standard-gauge cars and 4,831 narrow-gauge cars were either in France or on the ocean. Two general repair shops were equipped for standard-gauge locomotives; two for the narrow-gauge. One extensive car erecting shop was completed; thirty-six engine houses were designed and partly built and 749,345 tons of eighty-pound rail purchased, sufficient to lay 5,961 miles of single track. Of this amount, 298,923 tons had been sent overseas at the time of the armistice. In addition to this, 979,526 tons of narrow-gauge and light railway rails and tracks were purchased. The total tonnage of all commodities amounted to 3,830,377 tons, of which at the time of the armistice, 1,043,766 tons was in France or on its way. In addition to the organization of the railway troops for France, 288 railway officers were sent to Russia from San Francisco, on December 30, 1918, to aid in operating the Trans-Siberian road.

The total purchases made by the office amounted to \$612,000,000. The material left over at the time of the armistice in this country was practically all disposed of at cost. The material and equipment abroad has since been disposed of by international agreement.

During the summer of 1918 Mr. Felton crossed the ocean and inspected all our transportation facilities in France, visited the ports where we handled our troops and supplies, and inspected the standard-gauge and light railways on the English, French and American fronts, covering about 12,000 miles in his trip.

Upon his resignation he was awarded the Distinguished Service Medal—the first one granted a civilian. The French Government later conferred upon him the title of Commander of the Legion of Honor.

The construction and administration of the railways was largely in the hands of another Tech man, Colonel H. M. Waite, '90. Waite in his younger days had been a railroad man and later had become city manager of Dayton, Ohio. He arrived in France early in 1918 as a lieutenant-colonel of engineers, and soon afterwards became engineer of construction for the Transportation Corps and had charge of all railroad, port, and harbor construction. Transportation was one of the greatest problems at this date, and Waite was soon appointed a member of a commission acting under the Supreme War Council to report on possible improvements in French and Italian railroads. Later he was promoted to colonel and served on commissions appointed by General Pershing to report on improvements in the Service of Supply and in this connection to decide how and where French railways could with advantage be placed under American management. His reports seem to have made a favorable impression, for a little later he was appointed deputy director-general of transportation, in charge of all work in the Advance Zone. After the armistice he served as a member of the Bridgehead Commission and was one of the first Americans to reach the Rhine. In January, 1919, he was assigned to the Department of Civil Affairs, at Advanced General Headquarters, Treves, and was placed in charge of all public utilities in American-Occupied Territory. For his efficient service Waite received a citation from the Commander-in-Chief, was appointed an Officer of the Legion of Honor and very recently has received the Distinguished Service Medal.

The light railways of the American Expeditionary Forces were directed by Colonel Herbert H. Adams, '99. Colonel Adams had entered the service as the Lieutenant-Colonel of the 12th Engineers. He had charge of the light railways supplying the British near



INTERIOR OF THE RAILROAD REPAIR SHOPS AT NEVERS, WHICH WERE
DIRECTED BY CHARLES S. GASKILL, '99

(U. S. Official)

St. Quentin during the summer of 1917, but in the early part of November he was placed in charge of all American light railway troops and of the entire light railway service in the Zone of the Armies; he was also the representative of the Director-General of Railroads of the American Expeditionary Forces on the staff of the Commander-in-Chief. His appointment took him away from the St. Quentin sector, and thus he did not take part in the fighting about Cambrai. He saw service later, however, along the entire American front, was promoted to the rank of colonel, and was appointed an officer of the Legion of Honor.

Mention has already been made of the locomotive and car-repair shops established in France, and few will be surprised to know that another Tech man, Lieutenant-Colonel Charles S. Gaskill, '99, took charge of one of the most important among these. Gaskill went overseas as a member of the 19th Engineers, one of the regiments especially organized by Mr. Felton for repair-shop work. He was shortly afterwards promoted to the rank of lieutenant-colonel and placed in command of the locomotive and car-repair shops at Nevers, France. Altogether, the transportation service assembled some 20,000 cars and 1500 standard-gauge locomotives, and also assisted the French by repairing 57,385 French cars and 1947 locomotives. Of these, the largest portion was handled at the Nevers shops, and so well did Colonel Gaskill perform his duties that he received the Distinguished Service Medal.

After leaving the railroads, motor vehicles form the principal means of transportation in the zone of combat. In addition to giving the necessary mobility to personnel and matériel in actual operation against the enemy, motor transportation forms an important auxiliary to railway transportation in the zone of armies. The work of the motor trains was particularly heavy and particularly important in that zone known as the Advance Section, Service of Supply, and the chief motor transport officer of this section was Colonel Brainerd Taylor, '99. Colonel Taylor was a member of the Regular Army, and of the Coast Artillery Corps, having entered the service in 1902. At the outbreak of war he was serving in Hawaii, but in September, 1917, he was ordered to France, and

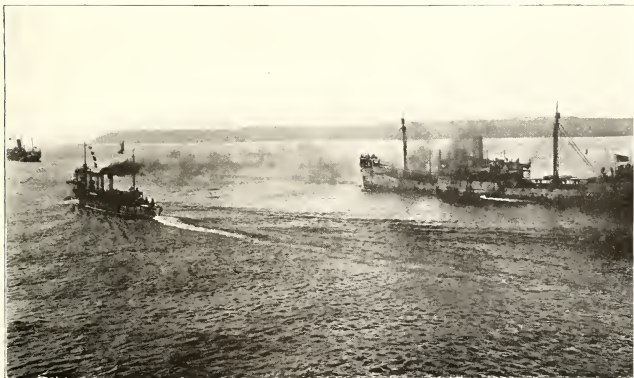
TRANSPORTATION

shortly after was appointed chief motor transport officer of the Advance Section. Under his guidance the service rapidly developed from nothing to a command of 10,000 officers and men. Five overhaul parks, nine service parks, and two automotive supply depots were constructed and thoroughly organized for the overhaul, repair and supply of all motor vehicles in the Advance Section, including the three American armies. Forty-three operating groups of motor vehicles, garages, dumps or other motor transport facilities were established for service to the armies and Service of Supply. Over 20,000 motor vehicles were received, conditioned after overseas shipment and delivered to the armies.

In the various parks 37,800 vehicles were repaired or overhauled, and a stock of 87,000 different kinds of spare parts, tools or automotive accessories maintained. In addition to vehicle repairs 22,000 miscellaneous parts and assemblies were repaired.

At the date of the outbreak of war, Colonel Taylor held the rank of captain, but was soon promoted to major, lieutenant-colonel, and colonel. He saw service in the St. Mihiel and Meuse-Argonne operations, and for his excellent work in connection with motor vehicles he received the Distinguished Service Medal and was appointed an officer of the Legion of Honor.

While the motor trucks handled the materials between the railheads and the supply dumps near the front, the materials were transferred from transport to railway by stevedore battalions, made up of American Negroes. Major Percival M. Churchill, '95, commanded a battalion of these fellows. His unit was originally the 538th Engineer Service Battalion. He and his officers spent much time in disciplining their organization to make it fit for work for the zone of advance, but on arrival in France the battalion was broken up, the companies transferred to the Transportation Corps and sent to the docks at Marseille, where they became stevedores. Speaking of the work Churchill says: "The gangs used for unloading the ships generally had about twenty men per hatch and each had its regular men for work below, on the winches and on the dock receiving freight. The freight cars were shifted by hand and these gangs — according to the Negroes — didn't work — they just 'played engine.'"



A CONVOY ENTERING BREST

(U. S. Official)

TECHNOLOGY'S WAR RECORD

"My experience did not include the handling of the men on the docks. A separate body of officers took charge of that work, while the troop or 'military' officers as they were called, handled the men in camp, cared for them, fed, clothed and disciplined them. One or two troop officers took the men to the docks — in trucks — turned them over to the dock officer for work and took them back to camp when work was over. They were, however, responsible for the discipline on the docks. None of the troop officers believed in this system, and my own opinion, after having had a chance to think it over from a distance, is that better results would have been obtained if the men had worked entirely under their own officers.

"The troop officers with stevedores had perhaps the most unsatisfactory duty the American Expeditionary Forces had to offer. They did not have the excitement of front-line service, nor the satisfaction of accomplishing a good piece of work with their own men, as did many Service of Supply organizations. I cannot say that they always did their work cheerfully, but they did it well.

"The record for moving freight at Marseille so far as I know was one ship unloaded at the rate of 3600 tons per day by two companies, one on the day shift with about 235 men, and one on the night shift with about 150 men."

HOSPITALS

Another very important service of the American Army was that which cared for the sick and wounded. The great hospital center of Beau Desert was commanded by Colonel Harold W. Jones, '98. Colonel Jones entered the Institute in 1894, and took up special work with the Class of 1898. He subsequently was graduated from the Harvard Medical School in 1901, entered the Army and was graduated from the Army Medical School in 1906. At the outbreak of the war he was secretary to the faculty, and Professor of Administration and Tactics at the Army Medical School at Washington, D. C., but in the spring of 1918 he was placed in command of Base Hospital No. 114, which he organized and took overseas. Upon his arrival there he was placed in command of Beau Desert Hospital Center, one of the five largest in France.

The tract of land upon which this great center was built comprised some 550 acres, and was situated about five miles west of the city of Bordeaux. It was originally selected as the site for ten base hospitals of 1,000 beds each, with an emergency expansion to 1,500 each, but enough land was reserved to increase the number of hospitals to sixteen. As the war progressed and American participation in it became greater, it was seen that to provide the necessary bed capacity it would be necessary to make extraordinary efforts, and during the summer of 1918 final authorization was given to complete seventeen units.

The construction plan of Beau Desert called for nearly 1,000 buildings, the laying of miles of railroad track, of many miles of roads, walks, and sewers, the installation of what was practically a city water system, fire system, telephone and telegraph systems, electric-light service, the construction of mills (lumber and cement), the opening of gravel pits and sand pits, and the construction of large warehouses and a large modern steam laundry.

On November 12, the day after the signing of the armistice, including the convalescent camp and with but two base hospitals operating, the center had 12,558 patients, the total population being over 21,000. If one stops to consider what it is for the personnel of a hospital designed to care for 1,000 patients to care for and feed over 5,000, it staggers the imagination. This was simply one of the things which was done because it had to be done; and that it was not only done but done well, and that no patient actually suffered from neglect, is a high tribute to the efficiency of the organization. The other hospitals making up the center arrived either at the time the armistice was signed or shortly after.

Altogether during the period of hostilities there passed through this hospital center 47,238 cases, of whom 45,398 came from outside the center itself. During the month of October no fewer than twenty-one hospital trains arrived, bringing in, as is needless to say, chiefly men wounded in the operations in the Argonne. Of all the cases admitted up to April 1, 1919, but 304 died. The work of Colonel Jones compels especial admiration, for it was found frequently during the recent war that a man may be an excellent surgeon

STAFF AND SERVICE OF SUPPLY

"The Tower of Babel had nothing on our foreign-language section. We handled exactly fifty languages aside from English, and did it all in one office with the exception of Welsh, Japanese and Chinese. We had a working arrangement for the first and second with our allies, and the other was taken care of by a 'Y' secretary with a Chinese labor camp. Our readers were all taken from the enlisted or officer personnel of the Army, and one or two had the record of being able to translate twelve different languages. The whole department was, however, puzzled twice, once when we received a letter from an illiterate French-Canadian soldier which was written in phonetic French. The other was similar, but was an English letter written by a Swede."

Another of our men engaged in similar work has recorded an equally difficult cryptogram which proved to be a telegram written in Welsh, sent by an operator in American Morse, and received by a German acquainted only with Continental code.

Another branch of the General Staff abroad was the Chemical Service. It handled problems of all natures, not only analyzing "duds" and doing similar work in connection with the usual work of the Chemical Warfare Service but also solving all chemical problems which were presented to the American Expeditionary Forces, of whatever nature. The personnel of this service was selected by Colonel William H. Walker (see page 255) who was its first director. The laboratory of this service which was located at Puteaux was directed by Major Frederick G. Keyes, our associate professor of physico-chemical research. His problem was a difficult one, for apparatus from the United States was not easy to obtain and that which could be obtained in France was both scarce and of a type to which most members of the staff were comparatively unaccustomed. Nevertheless, the laboratory was organized and administered with great efficiency; Keyes, who had originally entered the service as a captain, was promoted to major and recommended for a lieutenant-colonelcy. However, he did not receive the last promotion, because of the policy adopted after the armistice by which only a few selected men were promoted.

Before leaving the work of our men on the Staff of the American Expeditionary Forces, it may be mentioned that Lieutenant Colonel D. B. Sanger was assistant chief signal officer. Previous to the war he had no connection with the Institute, but has since been assigned here for graduate work with the class of 1920.

The Staff selects the equipment of an army and determines its movements, but the procurement of the material and the actual transportation rest with other departments and services. Of these none is more important than the Quartermaster Department, which sees to the supply of practically all equipment except weapons, ammunition and airplanes. Probably the highest purely military office held by any Tech man during hostilities was that of chief quartermaster of the American Expeditionary Forces, a position filled by Brigadier (later Major) General Harry L. Rogers, '89. Rogers attended the Institute for two years, 1885 and 1886, taking special work. At the outbreak of war he was a colonel of the Regular Army, Quartermaster Corps. In August, 1917, he was commissioned brigadier-general and was almost immediately appointed Chief Quartermaster of the American Expeditionary Forces. In this position he had charge of the supply of all subsistence, clothing and equipage for the two million men in France, and also had the duty of evolving a system by which the additional two million who were to be sent over should be taken care of. The work involved what amounted to the planning of a national railway and canal system, the estimate of the size and location of storehouses and depots, refrigerating plants, and remount depots, the purchase of land, building material, food, horses and thousands of other articles, the disbursement of funds and many minor matters.

The general scope of the work can be judged from a few items noted in the report of Benedict Crowell, Director of Munitions. In November, 1918, General Rogers' department was distributing not less than nineteen tons of coffee per day; tobacco was also part of the ration, and each month twenty million cigars and over four hundred million cigarettes were consumed. Candy was a minor component of the soldier's diet, and in November, 1918, nearly one million four hundred thousand pounds of this material were handled. Altogether, up to December 1, 1918, over one hundred and twenty-five thousand tons of beef (from which bones had been removed) and two hundred and seventy thousand tons of flour were landed in France and either stored or distributed.

TECHNOLOGY'S WAR RECORD

Clothing was handled in similar quantity, three million blankets and nine million shoes being among the items. Under General Rogers a new method of clothing distribution was inaugurated. Previously American organizations carried a supply of extra clothing with them, the men washing the old clothing and changing to the spare set from time to time. In France units moved so often that the transportation of this clothing would have entailed excessive demands on railways and truck trains; moreover, there were few opportunities to wash; finally the clothes of the men coming from the trenches were not only dirty but full of vermin, and so required special treatment. The new system was so arranged that when a division came out of the line, the men discarded every stitch of old clothing, washed themselves, and on leaving the bath house were supplied with fresh uniforms, clean, pressed and free of vermin. The old clothing was then sorted, that which was too bad for further use being sent to salvage stations, while that which was still good



(U. S. Official)

QUARTERMASTER SUPPLIES BEING LOADED ON LIGHT-RAILWAY CARS TO BE SENT TO THE FRONT

was steamed in a "cootie cannon," washed and saved for the next unit. The "cootie cannons," laundries and bathing units were all arranged as traction engine or motor trailers, and probably did more for the comfort and health of the soldier than any other one device.

The great salvage depots were also developed under General Rogers. The size of these may be judged from the fact that they occupied over seven hundred thousand feet of floor space and employed over eleven thousand workmen. The number of French women alone engaged in this work was greater than the total personnel of the United States Quartermaster Corps in 1916. In these depots the clothing sent in from the mobile laundries, and from the wreckage of the battle field was sorted. The best portion was again made over into uniforms and equipment for American troops. The rest was either sold or, in the case of uniforms, was dyed green and issued to prisoners of war.

One might very easily write a number of volumes on the work of General Rogers and his subordinates abroad, but space does not permit. It is a very significant fact that, in view of the difficulties under which he labored, in this war for the first time American

STAFF AND SERVICE OF SUPPLY

troops were sufficiently fed and clothed, and while occasionally certain units during rapid advance did not receive their complete rations or were unable for a few days to obtain shoes of comfortable design, nevertheless in general supplies were adequate, and this despite the fact that the total amount which could be drawn on was much smaller in proportion to the number of men supplied than has been the case in preceding wars. In recognition of his services General Rogers received the United States Distinguished Service Medal, was made a Companion of the Bath, Commander of the Legion of Honor, and a Commander of the Belgian Order of the Crown. On July 22, 1918, he was appointed a major-general of the Quartermaster Corps, and since February, 1919, has served as quartermaster-general of the Army, and director of purchase, storage and traffic.

Closely connected with the work of the Quartermaster Corps was the Service of Rents, Requisitions and Claims, and, like the former, it was headed by a Tech man, Lieu-

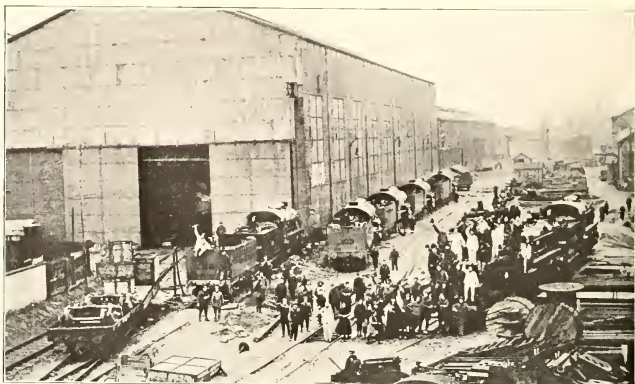


RATIONS GOING TO THE FRONT

(U. S. Official)

tenant-Colonel Woodruff Leeming, '91. Leeming had served as a corporal in the Plattsburg Camps of 1916 and had later been commissioned major. He had acted as constructing quartermaster at Camp Colt, and went overseas in command of the 401st Supply Train. Leeming had especially desired to remain in this outdoor work, but his ability was too well known and he was quickly ordered to report to the Chief of Lines of Communications at Tours, where he was placed in charge of all leases of land or buildings in France. Under him the work enlarged until it became a separate service, that of Rents, Requisitions and Claims. He saw service in every part of France, negotiating for docks, camp sites, and hotels for hospitals or recreation centers, generally closing the larger contracts in person. After the armistice he was appointed a member of the Commission on War Damages in Allied Countries and was sent to Rome, where he served as Assistant Chief, Economic Branch of War Damages Board for Italy. The work was of a most exacting nature, and Leeming appears never to have spared himself when duty was to be performed. His health finally gave out and he was obliged to return to the United States in the spring of 1919. He was, however, unable to recover, and died November 20, 1919. After his death he was made an Officer of the French Academy.

TECHNOLOGY'S WAR RECORD



(U. S. Official)

THE LOCOMOTIVE ASSEMBLING SHOPS AT ST. NAZAIRE, SHOWING SOME OF THE 1,801 LOCOMOTIVES SENT OVER BY SAMUEL M. FELTON, '73

TRANSPORTATION

The entire railway transportation of the American Expeditionary Forces was under the direction of Samuel Morse Felton, '73. Mr. Felton has long been known as one of America's foremost railway men. His father, also Samuel Morse Felton, was Superintendent of the Fitchburg Railroad in 1843, and later directed the secret passage of Abraham Lincoln from Harrisburg to Washington in 1861, being at that time President of the Wilmington and Baltimore Railroad. The son continued to follow the father's profession until he became one of America's foremost authorities on railroad operation.

In June, 1916, Mr. Felton, then President of the Chicago and Great Western, was asked to organize troops to operate railroads in Mexico, in case our Army advanced south of the Rio Grande. His title at that time was Consulting Engineer and Adviser to the Chief of Engineers.

When war was declared with Germany he was requested to organize nine railway regiments for service abroad. Five construction regiments were soon assembled and two more were later recruited. The colonel of each was an engineer officer from the Army. The lieutenant-colonels of the first five had been chief engineers of large American railroads; the captains, thirty of them, had been engineers of maintenance of way; the lieutenants had been supervisors or road-masters; the sergeants and corporals had been track and bridge foremen; while the privates were experienced track laborers.

Shop and operating regiments also were organized. These too were composed of experienced men. The officers had been general managers, division superintendents, trainmasters, master mechanics and chief dispatchers. Each company included twelve locomotive engineers, sixteen brakemen, eight conductors, together with switchmen, telegraph operators, clerks and stenographers, signal mechanics, car inspectors, track foremen and others.

When this work had been completed, on July 15 Mr. Felton was appointed direc-

CONSTRUCTION

chase of a single field involved settlement with from five hundred to one thousand owners. He was also responsible for the preparation of plans and supervision of the construction by engineer troops. Captain Loring has written some description of these airdromes in the *Architectural Record* for April, 1919. In this article he brings out the fact that all airdromes were not exactly alike, but that each was located and built so as to be best suited for its purpose. Perhaps one of the most interesting features common to all was the irregular arrangement of the buildings to prevent them from becoming easy targets to hostile bombing planes. The sites generally selected were very flat, smooth hilltops, but even then much preparation was necessary before the fields were suitable. Shallow ditches marking the boundaries of the French farms had to be levelled off carefully, and the pebbles removed from the surface, since otherwise they would have been sucked up and so would have caused injury to the propellers of the machines.



A FILTRATION PLANT A FEW KILOMETERS FROM THE FRONT—
AT EUVEZIN. OCTOBER 22, 1918.

(U. S. Official)

Lieutenant J. C. Bollenbacher, '09, was engaged in this work as commander of the 45th Construction Squadron. He helped to start work on Air Service Production Center No. 2 at Romorantin, the greatest in France. The buildings in this case were of steel construction, and Bollenbacher was in charge of erection. He says that, thanks to the wonderful spirit and versatility of his men, and by their splendid teamwork his organization, erected and braced with purlins forty steel trusses, each of fifty-foot span, in one hour and thirty-eight minutes, an average of one truss every two and a half minutes. It is not known whether this constitutes a record, but it was certainly a most creditable performance.

Another branch of engineering work in which a number of our men were engaged was that of the 20th Engineers, the Forestry Regiment. Of this work, Captain A. M. Mutersbaugh, '13, says, "The Forestry Division, so called, consisted entirely of the 20th Engineers. This regiment was increased by additions after arriving in France until it was larger than an ordinary combat division, made up almost entirely of engineer troops and labor battalions. I was assigned to this regiment soon after arriving in France, and placed in command of a sawmill operation at a little place called Avocourt, just south of

TECHNOLOGY'S WAR RECORD

Toul. There were a large number of these units just back of the lines and scattered all over northern and eastern France. The country was divided into districts, the largest of which was the Epinal district under Major S. O. Johnson.

"The job of these units in the Advanced Section was to get out railroad ties, and during the time we were using them, trench slats. They usually consisted of a little boulder mill of ten to fifteen thousand feet capacity, although by pushing and all-night work we increased this to twenty and thirty thousand. Their location usually depended upon our ability to find the timber, especially in places where it could be removed as speedily as possible, for the constant cry was for more ties. The usual timber cut was oak, beech, and ash, predominating in the order named. These forests were located, bought, and cut with the assistance and under the supervision of the forestry branch of the French Army. The forests were located as near as possible to the engineer dumps, and several times we were within a few miles of the front line trenches and subjected to bombing and shelling by the enemy."

There were vast amounts of other construction work, and it is unfortunate that we have comparatively meagre details regarding it. A few instances, however, have been recorded. Thus, we know that Major Nathan A. Middleton, '07, of the 23d Regiment of Engineers, had charge of the construction and maintenance of roads, directing the operations of some 17,000 troops. Major John H. Caton, 3d, '08, has given a few statistics which show the magnitude of the work performed under more or less similar conditions. In addition to his duties as battalion commander, Caton was highway and street engineer of Base Section No. 5. He gives a short account of some of their work as follows: "Twelve miles water-bound macadam road and fifteen miles corduroy (railroad ties) road were built; 46 miles French road were re-enforced; 30,000 square yards Belgian block pavement and 25,000 square yards concrete streets were laid; six quarries were opened, machinery installed and operated for crushed rock, producing 150,000 cubic yards." The stone used in this work was chiefly quartz and trap.

Another of our men who should be mentioned is Captain T. K. Meloy, '17, of the 604th Engineers, later transferred to the 1st Engineers. Captain Meloy assumes the responsibility for having built the "Rest Camp" at Knotty Ash, Liverpool. If one may judge from the replies sent in by Tech men, there are few indeed who saw service abroad who have not vivid recollections of this stopping place. Perhaps they will be interested to know under what difficulties the camp was constructed. Captain Meloy says: "I had the honor to be engineer officer and had the Royal Engineers to work with; construction of this camp had lagged for about six months without result, due to change of command and strikes. By the inspiration of one battalion of American engineers who broke the British workmen strikes, the speeding up by the Royal Engineers, heavy pressure from General Biddle and the English authorities, and the 'flu' panic, we managed to accomplish more in the two weeks than in all the time previous. We built about five miles of road and drained the camp — and it was some reclamation job, too."

Many of our men were assigned to fire protection duty. In January, 1918, Lieutenant Alexander Ellis, '08, submitted a report on the protection of all American docks, warehouses, and hospitals, against fire. This plan was adopted and Ellis was transferred from the 101st Engineers to the office of the Chief Engineer of the American Expeditionary Forces as chief of the Bureau of Fire Prevention.

In the meantime, Major Edward V. French, '89, was sent abroad, in response to a cabled request for a fire-protection expert, to take up this same work. The bureau, as we have seen, had just been organized by Ellis, when Major French arrived and succeeded Ellis as chief. His problem was a very severe one, and he says regarding it, "There were very large concentrations of value, and in places, serious hazards. Efforts were made to make the best possible use of all available means; water pails, barrels, and like small equipment, were developed as rapidly as possible; while large quantities of heavier apparatus were ordered from America. Contracts for automatic sprinklers in some shops were made, fire pumps and hydrants were added to water supplies built by our Army, wells and tanks were provided for fire engines and fire trains, and boats were improvised. There were a number of Tech men in the bureau, and they gave earnest

THE ARMISTICE

service to this most important work of preserving invaluable supplies and safeguarding facilities vital for handling equipment."

How efficient the system produced was, may be judged from the statement of Lieutenant Garland Lufkin, '18, one of the men working as a member of it, who states that the total loss from fire in the entire American Expeditionary Forces was approximately five million dollars. As there was practically no way of extinguishing a fire once started, and as almost every warehouse contained more than the above-mentioned quantity of material, it can be seen that the work of prevention was most effective.

THE ARMISTICE

The signing of the armistice brought new problems. Immediately following its announcement the German army temporarily lost its organization and discipline. The first refugees and released prisoners of war entering the American lines brought stories of wholesale mutiny and disorder, and the first towns entered by the advancing troops showed evidences of the same. The German troops had broken their rifles against the trunks of trees, thrown away their trench helmets, and even in some cases, machine-guns. Ammunition belts and wicker shell-baskets were scattered in every direction, while such heavy equipment as guns, steam tractors, and automobiles lay everywhere abandoned. On many of these were written the words, "*Parol ist Heimat*," in other words, "The watchword is home." As time went on, however, these evidences of disorganization disappeared, and as our armies pressed onward through Luxemburg and the Rhineland there was little evidence that they were following a beaten or demoralized foe. Upon the contrary, there was every reason to believe that discipline had been restored, and that the retreat in the main had proceeded in an orderly and efficient manner.

The temporary breakdown in the German army did not become general till after hostilities had ceased, and up to the last minute systematic measures were taken to prevent a further advance by the Americans. Sergeant W. W. Hosmer, Jr., '06, 16th Railway Engineers, says: "The destruction of the Meuse River railroad to me appeared a shining example of the thoroughness with which the Germans carried out 'destructive' engineering. For a portion of the right-of-way nearest Verdun, everything was gone, rails, ties, bridges, culverts; next came a section where rails were in place, but every other rail joint on alternate sides was blown, as were the culverts. Further on, the unexplored charges were still in place at every other joint in the single line of rail. Further on, two lines of rail were in place, joints not mined, but the holes dug; all switches were blown.

"In a similar way you could trace, along the highway from Verdun toward Metz, commencing at the Hindenburg line, their methodical preparation for retreat. Tall Lombardy poplars lining the highway were incised at about head height on the road side, and loaded with dynamite. The exploding charge blew the trunks inward and the trees falling across the road from opposite sides blocked passage most effectively."

The roads were repaired as rapidly as possible. Private Roland H. Eaton, '17, of the 37th Engineers, gives this brief description of how the first trains were put through: "When the Army of Occupation started for the Rhine a detail was sent to Conflans, where it assembled two trains. These were fitted with bunks and a German electric lighting set, and we set out for Coblenz. We crossed into Germany at 6.00 A.M., December 1, being thus the first United States troops in Germany. We reached Coblenz on December 6, in time to see the last German troops march out the following morning."

Although his unit was perhaps the first section of American troops to cross the border, another Tech man was there before Eaton. As has been mentioned, Colonel H. M. Waite, '90, had been appointed a member of the Bridgehead Commission, and he had motored into Coblenz to arrange the details of the transfer with the officers of the German Staff, and had been assigned quarters at the *Coblenzerhof*. He says: "Next morning we had a wonderful opportunity to see the German Army cross the Rhine. The hotel was directly in front of the old pontoon bridge. They passed in review in front of the hotel. It was a foggy morning and you could not see across the river. The bands played; colors

TECHNOLOGY'S WAR RECORD



(U. S. Official)

REPAIRING STANDARD-GAUGE RAILWAY DESTROYED BY THE ENEMY DURING THEIR RETREAT.
IN THE FOREGROUND IS A MINE CRATER CAUSED BY A CHARGE
PLACED BENEATH A SMALL CULVERT

were flying, wagons and horses were trimmed with green and colored paper; some wagons had four Christmas trees, one at each corner, decorated with paper. There was a noticeable lack of trucks, and many little Russian horses.

"As the officer at the head of each company reached the reviewing officers, drawn up on horseback in front of the hotel, every man in the company, as of one voice, yelled '*Hoch.*' Women were in the street giving the men cigars, cigarettes, and postcards. As they approached the bridge the band played '*Wacht am Rhein.*' The men would sing and they, with their colors, would disappear into the fog, all in wonderful order and discipline. This was the defeated, humiliated, and crushed German Army!"

Immediately after the occupation of the Rhineland, a provisional military government was set up, and quite a number of Tech men occupied important positions in connection with it.

As we have seen, Colonel Waite took charge of all public utilities in American Occupied Territory. After his return to the United States in February, 1919, the control of public utilities seems to have been placed under the headquarters of the Third Army at Coblenz. Major John H. Leavell, '07, then took charge of the work. Leavell had started out as a captain in the 316th Engineers of the 91st Division. He had taken part in the operations at St. Mihiel, the Argonne and the Escault, and had received the Distinguished Service Cross for valor at Audenarde, Belgium. In connection with his work in the occupied zone he acted as agent for the Inter-Allied Coal Commission, being charged with the distribution of all coal entering American Occupied Territory.

Colonel Stewart Godfrey, '07, became executive officer to the Chief Engineer of the Third Army. Godfrey, after leaving the Institute, entered West Point and at the outbreak of war was a captain in the Corps of Engineers. He went overseas with the 318th Engineers, but was sent to Tours as engineer personnel officer of the American Expeditionary Forces. Later he participated in the Meuse-Argonne offensive as assistant to the chief engineer of the First Army.

HOSPITALS

or doctor and yet lack the administrative and organizing ability to handle work of the magnitude here involved. Colonel Jones at the outbreak of the war held the rank of major in the Medical Corps, he was promoted to that of colonel, and was awarded the Cross of the Legion of Honor by the President of France, the presentation being made by no less a person than Marshal Pétain.

Base Hospital No. 44 was organized by Doctor Allan W. Rowe, '01. In the spring of 1917, acting in accordance with the request of the director of the Evans Memorial (Massachusetts Homeopathic Hospital), Rowe assembled this unit and was responsible for its maintenance until March 10, when it passed into federal service. Doctor Rowe performed this work as a civilian, his personnel being inducted through the regular enlisting officers and later by one of his own officers, who was empowered to make such additional enlistments as were necessary. The hospital was ordered to foreign service and was situated



THE HOSPITAL CENTER AT BEAU DESERT, COMMANDED BY HAROLD W. JONES, '98

first at Pougues les Eaux, and later became the headquarters unit at the center at Mesves. It was Rowe's intention to enter the Chemical Warfare Service, and he endeavored to obtain a commission, requesting overseas duty. He was refused because of some trifling physical disability, and was obliged to remain in civilian capacity, doing such work as was possible in connection with the draft, the Students' Army Training Corps, and similar activities.

One of the members of Base Hospital No. 44 was Major J. A. Rockwell, Jr., '95, who is well known because of his strong advocacy of athletics at the Institute. Doctor Rockwell was chief of the medical service at the hospital.

Another of our former students who saw service in hospital work was Miss Gertrude T. Spitz, '17. She describes herself as being officially a staff nurse in the British service, but in reality "Jack of all trades." Her duties were to make herself generally useful and she turned her hand to laboratory work, statistics and assistant to the dietician. The hospital handled about 150,000 casualties, was visited by Queen Mary, was quite frequently bombed, but, so Miss Spitz says, otherwise there were no striking events to record.

TECHNOLOGY'S WAR RECORD

CONSTRUCTION

Of course the building of these hospitals, depots and machine shops required an immense amount of construction work, and Tech men were very prominent in all departments. A certain amount of this work was performed by civilians but much of it was also performed by engineer troops. Perhaps that branch of the work in which Tech men in the Army appear to have been most active was water supply. Every hospital, camp, storehouse or shop had to have its supply, and in addition the troops at the front had to be provided with points at which their water carts could refill.

This work was entirely in charge of Colonel Francis F. Longley, '05. Colonel Longley was graduated from West Point with the Class of 1902, but shortly afterward resigned and entered the Institute, where he took up post-graduate work in sanitary engineering. He later had charge of numerous projects throughout the United States and Canada, notably in connection with the water supply of Toronto, Ontario, and Washington, D. C. In July, 1917, Longley was commissioned major and shortly afterwards became a lieutenant-colonel in command of the 26th Engineers, a unit specially organized for water-supply work. He subsequently became colonel of the same regiment.

As commanding officer of this unit Longley had charge of the entire water-supply service of the American Expeditionary Forces. He personally superintended the work of the most active fronts and as a result took part in the Aisne-Marne, St. Mihiel and Meuse-Argonne operations. So efficient was his service that he received the Distinguished Service Medal. The exact nature of the work can best be judged by the accounts given us by some of his subordinates and companions.

Major Thomas H. Wiggin, '95, was one of Colonel Longley's most important assistants. Of his work he says: "I have been since September, 1917, in charge of the Water Supply Section of the Service of Supply. This section is simply one of the several branches of the engineering department. We are mixed up with every project, whether hospital, dock, air field, artillery shop, ice plant, railroad terminal or roadside stop, because water supply is an appurtenance of them all. Incidentally, the Water Supply Section also handled sewerage.

"Latterly the Service of Supply was divided into nine sections, each in charge of a section engineer.

"In nearly all of the sections is a fully equipped chemical and bacteriological laboratory for water analysis, reporting to the engineers. This is an innovation in the United States Army, as such work has in the past been done by the medical department. Some very broad-minded medical department officials, among whom are the new Surgeon-General, Major-General Ireland, and the new Chief Surgeon, American Expeditionary Forces, Colonel W. D. McCaw, co-operated with Colonel F. F. Longley, in placing the water laboratory work of the American Expeditionary Forces on a similar footing to that of cities and states in America. Laboratory men were commissioned in the Sanitary Corps or Engineer Corps, and placed in charge of these laboratories, and all the water supplies in France are subject to their periodic inspection and analysis.

"At first we allowed twenty-five gallons per capita for hospitals, and ten gallons for camps. Later we cut the hospital allowance to fourteen gallons. Some hospital centers will have a total population of about fifty thousand people, but they are expected to use only about the same amount of water as an American town of ten thousand inhabitants and no important manufacturing interests. The work includes dams, pipe lines up to twenty-four inches in size, rapid sand-filter plants, tube wells up to a depth of fifteen hundred feet, an occasional water-softening plant and many purification units for applying liquid chlorine. Pumps are mostly centrifugal, driven by automobile type gasoline engines. Many of the centrifugal pumps are made by the well-known French firm, Rateau, and we get heads up to three hundred feet in a single stage pump; they are small, light and not inefficient."

Water-supply problems at the front were somewhat different, and varied from the improvement of natural springs to the building of six-inch pipe lines behind the advancing infantry. One phase of the work is thus described by Captain Edbert C. Wilson, '07. "The most interesting part of my service was when on special duty with the 9th British

Corps, which was relieving the 2d American Corps. My assignment was Corps Water Supply Officer. My special duty was to keep in touch with the water supply situation so as to have the matter in hand when the 2d Corps should be brought back into line. It was our duty to provide for all the men and animals in the corps area, so that ordinarily we provided for 35,000 horses and 75,000 men. Water had to be secured by drilling wells one hundred feet or more in depth through the chalk formation and the water was brought to the surface by deep-well pumps or air lift. The usual disadvantages of front-line service, shelling, bombing and delayed-action mines were experienced. All our pumping machinery, so far as possible, was placed below the level of the ground.

"All drinking water was treated with chlorine. Even water in the deep wells was sometimes polluted. In a part of the area, streams and canals furnished the water supply and this water was highly polluted. For drinking purposes, the water from streams or old wells was treated in mechanical sterilizers. This work had to be pursued right up to the front line."

These sterilizers, or mobile water purification laboratories, as they were called, were designed and manufactured by William Orchard, '10. It has been said that without the work of these units the St. Mihiel offensive would have been practically impossible. Sergeant M. C. Balfour, '19, says of the work: "The Water Tank Train was a mobile water supply unit attached to the Second Army. The base trucks, which we operated, had an engine, pump, filter, chlorinating apparatus and complete laboratory for bacteriological and chemical water analysis." Lieutenant H. W. Hamilton, '17, was also engaged in the same type of work of which he says: "My time is spent in laboratory work largely confined to water, typhoid, dysentery, special problems and inspection in the surrounding territory."

The supplies necessary for this work were immense, and were handled largely by Major Leonard P. Wood, '01. His work was chiefly in the office of the Chief Engineer of the American Expeditionary Forces, forecasting needs, standardizing and initiating wholesale procurement of water-supply materials of all kinds. He says: "The water-supply installations of the American Expeditionary Forces ranged from a canvas tank fed by a hand pump through a line of hose, installed during an advance alongside the 75's to a plant involving five miles of twenty-four-inch pipe, large impounding and storage reservoirs, pumps and permanent filtration plant. The two thousand items of water supply stores on the simplified stock list ranged from quarter-inch plugs to nine-ton steam-tractor well-drilling machines. Although two hundred miles of cast iron pipe, many hundred gasoline-engine-driven pumps and, in the aggregate, much other material was obtained in Europe, the monthly requirements from the United States had reached eighteen thousand tons when the armistice was signed."

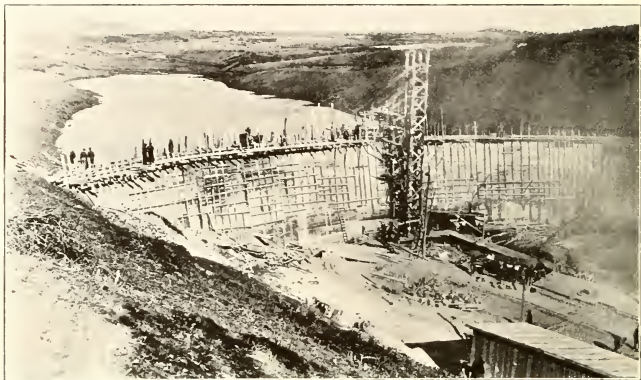
Captain Maurice R. Scharff, '09, writes: "My work with the American Expeditionary Forces in France was mostly devoted to the design and construction of water-supply projects. Among the more important of these, were those of the American camps and depots at Brest and La Rochelle, the supply of the docks, railroad yards, camps, refrigerating plants and depots at Bassens, near Bordeaux; the supply of the twenty-thousand-bed hospital at Beau Desert near Bordeaux; the installation of a number of locomotive watering stations along the main line of the Paris-Orleans Railroad between Bordeaux and Chateauroux. This work was done under the direction of Colonel F. F. Longley, '05, and more directly of Major T. H. Wiggin, '05, and in it I was closely associated with Major L. P. Wood, '01, Captain R. Suter, '00, Lieutenant E. H. Gage, '13, and many other Technology men."

As has been stated, our men were engaged in every variety of construction work, and it is only unfortunate that all their activities cannot be recorded. Lieutenant-Colonel D. C. Jackson, head of the Electrical Engineering Department, was called from the Reserve Corps to active duty and charged with the co-ordination of procurement of mechanical and electrical power requirements (other than motive power) of the American Expeditionary Forces, as a member of the staff of the General Purchasing Agent. This staff, which was called the "Technical Board" in seven months drew up a program of mechanical and electrical power to meet the requirements of the great port developments, erecting plants, repair plants, hospitals, and storehouses, aggregating approximately seventy thousand

TECHNOLOGY'S WAR RECORD

horsepower. It was necessary to obtain almost all the equipment in allied and neutral European countries. The board, of which Jackson was chief engineer, scoured France, Great Britain, Italy, Switzerland, Spain, and Portugal, and obtained mechanical and electrical power equipment from all, and was looking into the possibilities of Scandinavian countries when the armistice halted the work. The board also had a program for obtaining an additional twenty-seven thousand horsepower during the first half of the year 1919 had the war continued, in order to meet the additional requirement of the larger army which was to be sent to France. In this work Professor Jackson was aided by a number of Tech men, notably E. H. Sargent, '07, Edward L. Moreland, '08, and A. S. McAllister, '18.

During Professor Jackson's absence from the Institute, Dr. A. E. Kennelly, Professor of Electrical Engineering, became the acting head of the department, but he too was soon afterwards called into service abroad, not as a commissioned officer, but as a



STORAGE DAM AT SAVENAY

(U. S. Official)

A WATER-SUPPLY PROJECT CARRIED OUT UNDER DIRECTION OF F. F. LONGLEY, '05

special civilian agent or liaison officer. The exact duties of a liaison officer may not be clear to the reader. He is, as a rule, a confidential representative of some higher authority who is assigned to some other command or department to represent his chief. We, unfortunately, have not at hand details of Professor Kennelly's work. It may be said, however, that it was also connected with purchases, and it seems very probable from the nature of his previous work that these purchases involved radio apparatus and similar material. In any case his duties were of a highly confidential and responsible nature, and were performed directly under the orders of the Chief Signal Officer of the United States Army.

Another type of construction work was the location and erection of airdromes and flying fields. This work was carried on under the Designs and Projects Division of the Air Service, of which division Captain Charles G. Loring, '06, was chief. His duties consisted of the selection of suitable sites for airdromes, obtaining approval from American General Headquarters, and from French headquarters, and their transfer from the civilian owners. This latter task was no small one, for French farms are so minute that the pur-

STAFF AND SERVICE OF SUPPLY

"The Tower of Babel had nothing on our foreign-language section. We handled exactly fifty languages aside from English, and did it all in one office with the exception of Welsh, Japanese and Chinese. We had a working arrangement for the first and second with our allies, and the other was taken care of by a 'Y' secretary with a Chinese labor camp. Our readers were all taken from the enlisted or officer personnel of the Army, and one or two had the record of being able to translate twelve different languages. The whole department was, however, puzzled twice, once when we received a letter from an illiterate French-Canadian soldier which was written in phonetic French. The other was similar, but was an English letter written by a Swede."

Another of our men engaged in similar work has recorded an equally difficult cryptogram which proved to be a telegram written in Welsh, sent by an operator in American Morse, and received by a German acquainted only with Continental code.

Another branch of the General Staff abroad was the Chemical Service. It handled problems of all natures, not only analyzing "duds" and doing similar work in connection with the usual work of the Chemical Warfare Service but also solving all chemical problems which were presented to the American Expeditionary Forces, of whatever nature. The personnel of this service was selected by Colonel William H. Walker (see page 255) who was its first director. The laboratory of this service which was located at Puteaux was directed by Major Frederick G. Keyes, our associate professor of physico-chemical research. His problem was a difficult one, for apparatus from the United States was not easy to obtain and that which could be obtained in France was both scarce and of a type to which most members of the staff were comparatively unaccustomed. Nevertheless, the laboratory was organized and administered with great efficiency; Keyes, who had originally entered the service as a captain, was promoted to major and recommended for a lieutenant-colonelcy. However, he did not receive the last promotion, because of the policy adopted after the armistice by which only a few selected men were promoted.

Before leaving the work of our men on the Staff of the American Expeditionary Forces, it may be mentioned that Lieutenant Colonel D. B. Sanger was assistant chief signal officer. Previous to the war he had no connection with the Institute, but has since been assigned here for graduate work with the class of 1920.

The Staff selects the equipment of an army and determines its movements, but the procurement of the material and the actual transportation rest with other departments and services. Of these none is more important than the Quartermaster Department, which sees to the supply of practically all equipment except weapons, ammunition and airplanes. Probably the highest purely military office held by any Tech man during hostilities was that of chief quartermaster of the American Expeditionary Forces, a position filled by Brigadier (later Major) General Harry L. Rogers, '89. Rogers attended the Institute for two years, 1885 and 1886, taking special work. At the outbreak of war he was a colonel of the Regular Army, Quartermaster Corps. In August, 1917, he was commissioned brigadier-general and was almost immediately appointed Chief Quartermaster of the American Expeditionary Forces. In this position he had charge of the supply of all subsistence, clothing and equipage for the two million men in France, and also had the duty of evolving a system by which the additional two million who were to be sent over should be taken care of. The work involved what amounted to the planning of a national railway and canal system, the estimate of the size and location of storehouses and depots, refrigerating plants, and remount depots, the purchase of land, building material, food, horses and thousands of other articles, the disbursement of funds and many minor matters.

The general scope of the work can be judged from a few items noted in the report of Benedict Crowell, Director of Munitions. In November, 1918, General Rogers' department was distributing not less than nineteen tons of coffee per day; tobacco was also part of the ration, and each month twenty million cigars and over four hundred million cigarettes were consumed. Candy was a minor component of the soldier's diet, and in November, 1918, nearly one million four hundred thousand pounds of this material were handled. Altogether, up to December 1, 1918, over one hundred and twenty-five thousand tons of beef (from which bones had been removed) and two hundred and seventy thousand tons of flour were landed in France and either stored or distributed.

TECHNOLOGY'S WAR RECORD

Clothing was handled in similar quantity, three million blankets and nine million shoes being among the items. Under General Rogers a new method of clothing distribution was inaugurated. Previously American organizations carried a supply of extra clothing with them, the men washing the old clothing and changing to the spare set from time to time. In France units moved so often that the transportation of this clothing would have entailed excessive demands on railways and truck trains; moreover, there were few opportunities to wash; finally the clothes of the men coming from the trenches were not only dirty but full of vermin, and so required special treatment. The new system was so arranged that when a division came out of the line, the men discarded every stitch of old clothing, washed themselves, and on leaving the bath house were supplied with fresh uniforms, clean, pressed and free of vermin. The old clothing was then sorted, that which was too bad for further use being sent to salvage stations, while that which was still good



(U. S. Official)

QUARTERMASTER SUPPLIES BEING LOADED ON LIGHT-RAILWAY CARS TO BE SENT TO THE FRONT

was steamed in a "cootie cannon," washed and saved for the next unit. The "cootie cannons," laundries and bathing units were all arranged as traction engine or motor trailers, and probably did more for the comfort and health of the soldier than any other one device.

The great salvage depots were also developed under General Rogers. The size of these may be judged from the fact that they occupied over seven hundred thousand feet of floor space and employed over eleven thousand workmen. The number of French women alone engaged in this work was greater than the total personnel of the United States Quartermaster Corps in 1916. In these depots the clothing sent in from the mobile laundries, and from the wreckage of the battle field was sorted. The best portion was again made over into uniforms and equipment for American troops. The rest was either sold or, in the case of uniforms, was dyed green and issued to prisoners of war.

One might very easily write a number of volumes on the work of General Rogers and his subordinates abroad, but space does not permit. It is a very significant fact that, in view of the difficulties under which he labored, in this war for the first time American

STAFF AND SERVICE OF SUPPLY

troops were sufficiently fed and clothed, and while occasionally certain units during rapid advance did not receive their complete rations or were unable for a few days to obtain shoes of comfortable design, nevertheless in general supplies were adequate, and this despite the fact that the total amount which could be drawn on was much smaller in proportion to the number of men supplied than has been the case in preceding wars. In recognition of his services General Rogers received the United States Distinguished Service Medal, was made a Companion of the Bath, Commander of the Legion of Honor, and a Commander of the Belgian Order of the Crown. On July 22, 1918, he was appointed a major-general of the Quartermaster Corps, and since February, 1919, has served as quartermaster-general of the Army, and director of purchase, storage and traffic.

Closely connected with the work of the Quartermaster Corps was the Service of Rents, Requisitions and Claims, and, like the former, it was headed by a Tech man, Lieu-



(U. S. Official)

RATIONS GOING TO THE FRONT

tenant-Colonel Woodruff Leeming, '91. Leeming had served as a corporal in the Plattsburg Camps of 1916 and had later been commissioned major. He had acted as constructing quartermaster at Camp Colt, and went overseas in command of the 401st Supply Train. Leeming had especially desired to remain in this outdoor work, but his ability was too well known and he was quickly ordered to report to the Chief of Lines of Communications at Tours, where he was placed in charge of all leases of land or buildings in France. Under him the work enlarged until it became a separate service, that of Rents, Requisitions and Claims. He saw service in every part of France, negotiating for docks, camp sites, and hotels for hospitals or recreation centers, generally closing the larger contracts in person. After the armistice he was appointed a member of the Commission on War Damages in Allied Countries and was sent to Rome, where he served as Assistant Chief, Economic Branch of War Damages Board for Italy. The work was of a most exacting nature, and Leeming appears never to have spared himself when duty was to be performed. His health finally gave out and he was obliged to return to the United States in the spring of 1919. He was, however, unable to recover, and died November 20, 1919. After his death he was made an Officer of the French Academy.

TECHNOLOGY'S WAR RECORD



(U. S. Official)

THE LOCOMOTIVE ASSEMBLING SHOPS AT ST. NAZAIRE, SHOWING SOME OF THE 1,801 LOCOMOTIVES SENT OVER BY SAMUEL M. FELTON, '73

TRANSPORTATION

The entire railway transportation of the American Expeditionary Forces was under the direction of Samuel Morse Felton, '73. Mr. Felton has long been known as one of America's foremost railway men. His father, also Samuel Morse Felton, was Superintendent of the Fitchburg Railroad in 1843, and later directed the secret passage of Abraham Lincoln from Harrisburg to Washington in 1861, being at that time President of the Wilmington and Baltimore Railroad. The son continued to follow the father's profession until he became one of America's foremost authorities on railroad operation.

In June, 1916, Mr. Felton, then President of the Chicago and Great Western, was asked to organize troops to operate railroads in Mexico, in case our Army advanced south of the Rio Grande. His title at that time was Consulting Engineer and Adviser to the Chief of Engineers.

When war was declared with Germany he was requested to organize nine railway regiments for service abroad. Five construction regiments were soon assembled and two more were later recruited. The colonel of each was an engineer officer from the Army. The lieutenant-colonels of the first five had been chief engineers of large American railroads; the captains, thirty of them, had been engineers of maintenance of way; the lieutenants had been supervisors or road-masters; the sergeants and corporals had been track and bridge foremen; while the privates were experienced track laborers.

Shop and operating regiments also were organized. These two were composed of experienced men. The officers had been general managers, division superintendents, trainmasters, master mechanics and chief dispatchers. Each company included twelve locomotive engineers, sixteen brakemen, eight conductors, together with switchmen, telegraph operators, clerks and stenographers, signal mechanics, car inspectors, track foremen and others.

When this work had been completed, on July 15 Mr. Felton was appointed direc-

TRANSPORTATION

tor-general of military railways, United States Army. His duties were enlarged to include not only the organization of railway troops, but also the procurement of equipment, supplies, machinery and floating equipment connected with the transportation service abroad. At the time of his appointment he moved to Washington and made his residence there until February 15, 1919, when he returned to Chicago, having been relieved from the service at his own request on December 31, 1918.

A general idea of the amount of work that was handled by Mr. Felton may be gained when it is realized that 83,181 officers and men were organized in the Transportation Corps and actually in service, and an additional 49,768 had been authorized at the time of the armistice. Up to that date there had been purchased 3,750 standard-gauge locomotives, 1,547 light railway locomotives, 91,519 standard-gauge cars and 8,530 cars for the light railways. Of this number, 1,395 standard-gauge locomotives, 406 light railway locomotives, 19,163 standard-gauge cars and 4,831 narrow-gauge cars were either in France or on the ocean. Two general repair shops were equipped for standard-gauge locomotives; two for the narrow-gauge. One extensive car erecting shop was completed; thirty-six engine houses were designed and partly built and 749,345 tons of eighty-pound rail purchased, sufficient to lay 5,961 miles of single track. Of this amount, 298,923 tons had been sent overseas at the time of the armistice. In addition to this, 979,526 tons of narrow-gauge and light railway rails and tracks were purchased. The total tonnage of all commodities amounted to 3,830,377 tons, of which at the time of the armistice, 1,043,766 tons was in France or on its way. In addition to the organization of the railway troops for France, 288 railway officers were sent to Russia from San Francisco, on December 30, 1918, to aid in operating the Trans-Siberian road.

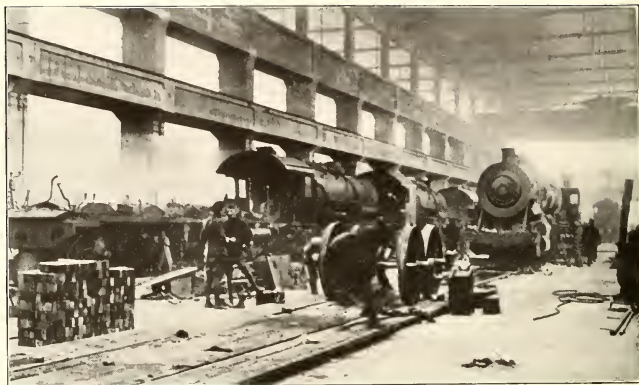
The total purchases made by the office amounted to \$612,000,000. The material left over at the time of the armistice in this country was practically all disposed of at cost. The material and equipment abroad has since been disposed of by international agreement.

During the summer of 1918 Mr. Felton crossed the ocean and inspected all our transportation facilities in France, visited the ports where we handled our troops and supplies, and inspected the standard-gauge and light railways on the English, French and American fronts, covering about 12,000 miles in his trip.

Upon his resignation he was awarded the Distinguished Service Medal — the first one granted a civilian. The French Government later conferred upon him the title of Commander of the Legion of Honor.

The construction and administration of the railways was largely in the hands of another Tech man, Colonel H. M. Waite, '90. Waite in his younger days had been a railroad man and later had become city manager of Dayton, Ohio. He arrived in France early in 1918 as a lieutenant-colonel of engineers, and soon afterwards became engineer of construction for the Transportation Corps and had charge of all railroad, port, and harbor construction. Transportation was one of the greatest problems at this date, and Waite was soon appointed a member of a commission acting under the Supreme War Council to report on possible improvements in French and Italian railroads. Later he was promoted to colonel and served on commissions appointed by General Pershing to report on improvements in the Service of Supply and in this connection to decide how and where French railways could with advantage be placed under American management. His reports seem to have made a favorable impression, for a little later he was appointed deputy director-general of transportation, in charge of all work in the Advance Zone. After the armistice he served as a member of the Bridgehead Commission and was one of the first Americans to reach the Rhine. In January, 1919, he was assigned to the Department of Civil Affairs, at Advanced General Headquarters, Treves, and was placed in charge of all public utilities in American-Occupied Territory. For his efficient service Waite received a citation from the Commander-in-Chief, was appointed an Officer of the Legion of Honor and very recently has received the Distinguished Service Medal.

The light railways of the American Expeditionary Forces were directed by Colonel Herbert H. Adams, '99. Colonel Adams had entered the service as the Lieutenant-Colonel of the 12th Engineers. He had charge of the light railways supplying the British near



INTERIOR OF THE RAILROAD REPAIR SHOPS AT NEVERS, WHICH WERE
DIRECTED BY CHARLES S. GASKILL, '99

(U. S. Official)

St. Quentin during the summer of 1917, but in the early part of November he was placed in charge of all American light railway troops and of the entire light railway service in the Zone of the Armies; he was also the representative of the Director-General of Railroads of the American Expeditionary Forces on the staff of the Commander-in-Chief. His appointment took him away from the St. Quentin sector, and thus he did not take part in the fighting about Cambrai. He saw service later, however, along the entire American front, was promoted to the rank of colonel, and was appointed an officer of the Legion of Honor.

Mention has already been made of the locomotive and car-repair shops established in France, and few will be surprised to know that another Tech man, Lieutenant-Colonel Charles S. Gaskill, '99, took charge of one of the most important among these. Gaskill went overseas as a member of the 19th Engineers, one of the regiments especially organized by Mr. Felton for repair-shop work. He was shortly afterwards promoted to the rank of lieutenant-colonel and placed in command of the locomotive and car-repair shops at Nevers, France. Altogether, the transportation service assembled some 20,000 cars and 1500 standard-gauge locomotives, and also assisted the French by repairing 57,385 French cars and 1947 locomotives. Of these, the largest portion was handled at the Nevers shops, and so well did Colonel Gaskill perform his duties that he received the Distinguished Service Medal.

After leaving the railroads, motor vehicles form the principal means of transportation in the zone of combat. In addition to giving the necessary mobility to personnel and matériel in actual operation against the enemy, motor transportation forms an important auxiliary to railway transportation in the zone of armies. The work of the motor trains was particularly heavy and particularly important in that zone known as the Advance Section, Service of Supply, and the chief motor transport officer of this section was Colonel Brainerd Taylor, '99. Colonel Taylor was a member of the Regular Army, and of the Coast Artillery Corps, having entered the service in 1902. At the outbreak of war he was serving in Hawaii, but in September, 1917, he was ordered to France, and

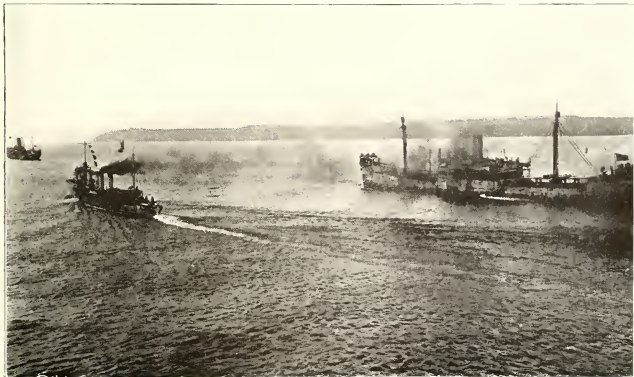
TRANSPORTATION

shortly after was appointed chief motor transport officer of the Advance Section. Under his guidance the service rapidly developed from nothing to a command of 10,000 officers and men. Five overhaul parks, nine service parks, and two automotive supply depots were constructed and thoroughly organized for the overhaul, repair and supply of all motor vehicles in the Advance Section, including the three American armies. Forty-three operating groups of motor vehicles, garages, dumps or other motor transport facilities were established for service to the armies and Service of Supply. Over 20,000 motor vehicles were received, conditioned after overseas shipment and delivered to the armies.

In the various parks 37,800 vehicles were repaired or overhauled, and a stock of 87,000 different kinds of spare parts, tools or automotive accessories maintained. In addition to vehicle repairs 22,000 miscellaneous parts and assemblies were repaired.

At the date of the outbreak of war, Colonel Taylor held the rank of captain, but was soon promoted to major, lieutenant-colonel, and colonel. He saw service in the St. Mihiel and Meuse-Argonne operations, and for his excellent work in connection with motor vehicles he received the Distinguished Service Medal and was appointed an officer of the Legion of Honor.

While the motor trucks handled the materials between the railheads and the supply dumps near the front, the materials were transferred from transport to railway by stevedore battalions, made up of American Negroes. Major Percival M. Churchill, '95, commanded a battalion of these fellows. His unit was originally the 538th Engineer Service Battalion. He and his officers spent much time in disciplining their organization to make it fit for work for the zone of advance, but on arrival in France the battalion was broken up, the companies transferred to the Transportation Corps and sent to the docks at Marseille, where they became stevedores. Speaking of the work Churchill says: "The gangs used for unloading the ships generally had about twenty men per hatch and each had its regular men for work below, on the winches and on the dock receiving freight. The freight cars were shifted by hand and these gangs — according to the Negroes — didn't work — they just 'played engine.'"



(U. S. Official)

A CONVOY ENTERING BREST

TECHNOLOGY'S WAR RECORD

"My experience did not include the handling of the men on the docks. A separate body of officers took charge of that work, while the troop or 'military' officers as they were called, handled the men in camp, cared for them, fed, clothed and disciplined them. One or two troop officers took the men to the docks — in trucks — turned them over to the dock officer for work and took them back to camp when work was over. They were, however, responsible for the discipline on the docks. None of the troop officers believed in this system, and my own opinion, after having had a chance to think it over from a distance, is that better results would have been obtained if the men had worked entirely under their own officers.

"The troop officers with stevedores had perhaps the most unsatisfactory duty the American Expeditionary Forces had to offer. They did not have the excitement of front-line service, nor the satisfaction of accomplishing a good piece of work with their own men, as did many Service of Supply organizations. I cannot say that they always did their work cheerfully, but they did it well.

"The record for moving freight at Marseille so far as I know was one ship unloaded at the rate of 3600 tons per day by two companies, one on the day shift with about 235 men, and one on the night shift with about 150 men."

HOSPITALS

Another very important service of the American Army was that which cared for the sick and wounded. The great hospital center of Beau Desert was commanded by Colonel Harold W. Jones, '98. Colonel Jones entered the Institute in 1894, and took up special work with the Class of 1898. He subsequently was graduated from the Harvard Medical School in 1901, entered the Army and was graduated from the Army Medical School in 1906. At the outbreak of the war he was secretary to the faculty, and Professor of Administration and Tactics at the Army Medical School at Washington, D. C., but in the spring of 1918 he was placed in command of Base Hospital No. 114, which he organized and took overseas. Upon his arrival there he was placed in command of Beau Desert Hospital Center, one of the five largest in France.

The tract of land upon which this great center was built comprised some 550 acres, and was situated about five miles west of the city of Bordeaux. It was originally selected as the site for ten base hospitals of 1,000 beds each, with an emergency expansion to 1,500 each, but enough land was reserved to increase the number of hospitals to sixteen. As the war progressed and American participation in it became greater, it was seen that to provide the necessary bed capacity it would be necessary to make extraordinary efforts, and during the summer of 1918 final authorization was given to complete seventeen units.

The construction plan of Beau Desert called for nearly 1,000 buildings, the laying of miles of railroad track, of many miles of roads, walks, and sewers, the installation of what was practically a city water system, fire system, telephone and telegraph systems, electric-light service, the construction of mills (lumber and cement), the opening of gravel pits and sand pits, and the construction of large warehouses and a large modern steam laundry.

On November 12, the day after the signing of the armistice, including the convalescent camp and with but two base hospitals operating, the center had 12,558 patients, the total population being over 21,000. If one stops to consider what it is for the personnel of a hospital designed to care for 1,000 patients to care for and feed over 5,000, it staggers the imagination. This was simply one of the things which was done because it had to be done; and that it was not only done but done well, and that no patient actually suffered from neglect, is a high tribute to the efficiency of the organization. The other hospitals making up the center arrived either at the time the armistice was signed or shortly after.

Altogether during the period of hostilities there passed through this hospital center 47,238 cases, of whom 45,398 came from outside the center itself. During the month of October no fewer than twenty-one hospital trains arrived, bringing in, as is needless to say, chiefly men wounded in the operations in the Argonne. Of all the cases admitted up to April 1, 1919, but 304 died. The work of Colonel Jones compels especial admiration, for it was found frequently during the recent war that a man may be an excellent surgeon

HOSPITALS

or doctor and yet lack the administrative and organizing ability to handle work of the magnitude here involved. Colonel Jones at the outbreak of the war held the rank of major in the Medical Corps, he was promoted to that of colonel, and was awarded the Cross of the Legion of Honor by the President of France, the presentation being made by no less a person than Marshal Pétain.

Base Hospital No. 44 was organized by Doctor Allan W. Rowe, '01. In the spring of 1917, acting in accordance with the request of the director of the Evans Memorial (Massachusetts Homeopathic Hospital), Rowe assembled this unit and was responsible for its maintenance until March 10, when it passed into federal service. Doctor Rowe performed this work as a civilian, his personnel being inducted through the regular enlisting officers and later by one of his own officers, who was empowered to make such additional enlistments as were necessary. The hospital was ordered to foreign service and was situated



THE HOSPITAL CENTER AT BEAU DESERT, COMMANDED BY HAROLD W. JONES, '08

first at Pougues les Eaux, and later became the headquarters unit at the center at Mesves. It was Rowe's intention to enter the Chemical Warfare Service, and he endeavored to obtain a commission, requesting overseas duty. He was refused because of some trifling physical disability, and was obliged to remain in civilian capacity, doing such work as was possible in connection with the draft, the Students' Army Training Corps, and similar activities.

One of the members of Base Hospital No. 44 was Major J. A. Rockwell, Jr., '05, who is well known because of his strong advocacy of athletics at the Institute. Doctor Rockwell was chief of the medical service at the hospital.

Another of our former students who saw service in hospital work was Miss Gertrude T. Spitz, '17. She describes herself as being officially a staff nurse in the British service, but in reality "Jack of all trades." Her duties were to make herself generally useful and she turned her hand to laboratory work, statistics and assistant to the dietitian. The hospital handled about 150,000 casualties, was visited by Queen Mary, was quite frequently bombed, but, so Miss Spitz says, otherwise there were no striking events to record.

TECHNOLOGY'S WAR RECORD

CONSTRUCTION

Of course the building of these hospitals, depots and machine shops required an immense amount of construction work, and Tech men were very prominent in all departments. A certain amount of this work was performed by civilians but much of it was also performed by engineer troops. Perhaps that branch of the work in which Tech men in the Army appear to have been most active was water supply. Every hospital, camp, storehouse or shop had to have its supply, and in addition the troops at the front had to be provided with points at which their water carts could refill.

This work was entirely in charge of Colonel Francis F. Longley, '05. Colonel Longley was graduated from West Point with the Class of 1902, but shortly afterward resigned and entered the Institute, where he took up post-graduate work in sanitary engineering. He later had charge of numerous projects throughout the United States and Canada, notably in connection with the water supply of Toronto, Ontario, and Washington, D. C. In July, 1917, Longley was commissioned major and shortly afterwards became a lieutenant-colonel in command of the 26th Engineers, a unit specially organized for water-supply work. He subsequently became colonel of the same regiment.

As commanding officer of this unit Longley had charge of the entire water-supply service of the American Expeditionary Forces. He personally superintended the work of the most active fronts and as a result took part in the Aisne-Marne, St. Mihiel and Meuse-Argonne operations. So efficient was his service that he received the Distinguished Service Medal. The exact nature of the work can best be judged by the accounts given us by some of his subordinates and companions.

Major Thomas H. Wiggin, '95, was one of Colonel Longley's most important assistants. Of his work he says: "I have been since September, 1917, in charge of the Water Supply Section of the Service of Supply. This section is simply one of the several branches of the engineering department. We are mixed up with every project, whether hospital, dock, air field, artillery shop, ice plant, railroad terminal or roadside stop, because water supply is an appurtenance of them all. Incidentally, the Water Supply Section also handled sewerage.

"Latterly the Service of Supply was divided into nine sections, each in charge of a section engineer.

"In nearly all of the sections is a fully equipped chemical and bacteriological laboratory for water analysis, reporting to the engineers. This is an innovation in the United States Army, as such work has in the past been done by the medical department. Some very broad-minded medical department officials, among whom are the new Surgeon-General, Major-General Ireland, and the new Chief Surgeon, American Expeditionary Forces, Colonel W. D. McCaw, co-operated with Colonel F. F. Longley, in placing the water laboratory work of the American Expeditionary Forces on a similar footing to that of cities and states in America. Laboratory men were commissioned in the Sanitary Corps or Engineer Corps, and placed in charge of these laboratories, and all the water supplies in France are subject to their periodic inspection and analysis.

"At first we allowed twenty-five gallons per capita for hospitals, and ten gallons for camps. Later we cut the hospital allowance to fourteen gallons. Some hospital centers will have a total population of about fifty thousand people, but they are expected to use only about the same amount of water as an American town of ten thousand inhabitants and no important manufacturing interests. The work includes dams, pipe lines up to twenty-four inches in size, rapid sand-filter plants, tube wells up to a depth of fifteen hundred feet, an occasional water-softening plant and many purification units for applying liquid chlorine. Pumps are mostly centrifugal, driven by automobile type gasolene engines. Many of the centrifugal pumps are made by the well-known French firm, Gateau, and we get heads up to three hundred feet in a single stage pump; they are small, light and not inefficient."

Water-supply problems at the front were somewhat different, and varied from the improvement of natural springs to the building of six-inch pipe lines behind the advancing infantry. One phase of the work is thus described by Captain Edbert C. Wilson, '07. "The most interesting part of my service was when on special duty with the 9th British

CONSTRUCTION

Corps, which was relieving the 2d American Corps. My assignment was Corps Water Supply Officer. My special duty was to keep in touch with the water supply situation so as to have the matter in hand when the 2d Corps should be brought back into line. It was our duty to provide for all the men and animals in the corps area, so that ordinarily we provided for 35,000 horses and 75,000 men. Water had to be secured by drilling wells one hundred feet or more in depth through the chalk formation and the water was brought to the surface by deep-well pumps or air lift. The usual disadvantages of front-line service, shelling, bombing and delayed-action mines were experienced. All our pumping machinery, so far as possible, was placed below the level of the ground.

"All drinking water was treated with chlorine. Even water in the deep wells was sometimes polluted. In a part of the area, streams and canals furnished the water supply and this water was highly polluted. For drinking purposes, the water from streams or old wells was treated in mechanical sterilizers. This work had to be pursued right up to the front line."

These sterilizers, or mobile water purification laboratories, as they were called, were designed and manufactured by William Orchard, '10. It has been said that without the work of these units the St. Mihiel offensive would have been practically impossible. Sergeant M. C. Balfour, '19, says of the work: "The Water Tank Train was a mobile water supply unit attached to the Second Army. The base trucks, which we operated, had an engine, pump, filter, chlorinating apparatus and complete laboratory for bacteriological and chemical water analysis." Lieutenant H. W. Hamilton, '17, was also engaged in the same type of work of which he says: "My time is spent in laboratory work largely confined to water, typhoid, dysentery, special problems and inspection in the surrounding territory."

The supplies necessary for this work were immense, and were handled largely by Major Leonard P. Wood, '01. His work was chiefly in the office of the Chief Engineer of the American Expeditionary Forces, forecasting needs, standardizing and initiating wholesale procurement of water-supply materials of all kinds. He says: "The water-supply installations of the American Expeditionary Forces ranged from a canvas tank fed by a hand pump through a line of hose, installed during an advance alongside the 75's to a plant involving five miles of twenty-four-inch pipe, large impounding and storage reservoirs, pumps and permanent filtration plant. The two thousand items of water supply stores on the simplified stock list ranged from quarter-inch plugs to nine-ton steam-tractor well-drilling machines. Although two hundred miles of cast iron pipe, many hundred gasoline-engine-driven pumps and, in the aggregate, much other material was obtained in Europe, the monthly requirements from the United States had reached eighteen thousand tons when the armistice was signed."

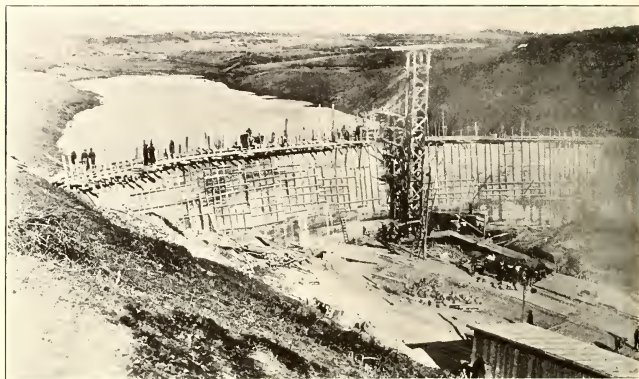
Captain Maurice R. Scharff, '09, writes: "My work with the American Expeditionary Forces in France was mostly devoted to the design and construction of water-supply projects. Among the more important of these, were those of the American camps and depots at Brest and La Rochelle, the supply of the docks, railroad yards, camps, refrigerating plants and depots at Bassens, near Bordeaux; the supply of the twenty-thousand-bed hospital at Beau Desert near Bordeaux; the installation of a number of locomotive watering stations along the main line of the Paris-Orleans Railroad between Bordeaux and Chateauroux. This work was done under the direction of Colonel F. F. Longley, '05, and more directly of Major T. H. Wiggin, '05, and in it I was closely associated with Major L. P. Wood, '01, Captain R. Suter, '00, Lieutenant E. H. Gage, '13, and many other Technology men."

As has been stated, our men were engaged in every variety of construction work, and it is only unfortunate that all their activities cannot be recorded. Lieutenant-Colonel D. C. Jackson, head of the Electrical Engineering Department, was called from the Reserve Corps to active duty and charged with the co-ordination of procurement of mechanical and electrical power requirements (other than motive power) of the American Expeditionary Forces, as a member of the staff of the General Purchasing Agent. This staff, which was called the "Technical Board" in seven months drew up a program of mechanical and electrical power to meet the requirements of the great port developments, erecting plants, repair plants, hospitals, and storehouses, aggregating approximately seventy thousand

TECHNOLOGY'S WAR RECORD

horsepower. It was necessary to obtain almost all the equipment in allied and neutral European countries. The board, of which Jackson was chief engineer, scoured France, Great Britain, Italy, Switzerland, Spain, and Portugal, and obtained mechanical and electrical power equipment from all, and was looking into the possibilities of Scandinavian countries when the armistice halted the work. The board also had a program for obtaining an additional twenty-seven thousand horsepower during the first half of the year 1919 had the war continued, in order to meet the additional requirement of the larger army which was to be sent to France. In this work Professor Jackson was aided by a number of Tech men, notably E. H. Sargent, '07, Edward L. Moreland, '08, and A. S. McAllister, '18.

During Professor Jackson's absence from the Institute, Dr. A. E. Kennelly, Professor of Electrical Engineering, became the acting head of the department, but he too was soon afterwards called into service abroad, not as a commissioned officer, but as a



(U. S. Official)

STORAGE DAM AT SAVENAY
A WATER-SUPPLY PROJECT CARRIED OUT UNDER DIRECTION OF F. F. LONGLEY, '05

special civilian agent or liaison officer. The exact duties of a liaison officer may not be clear to the reader. He is, as a rule, a confidential representative of some higher authority who is assigned to some other command or department to represent his chief. We, unfortunately, have not at hand details of Professor Kennelly's work. It may be said, however, that it was also connected with purchases, and it seems very probable from the nature of his previous work that these purchases involved radio apparatus and similar material. In any case his duties were of a highly confidential and responsible nature, and were performed directly under the orders of the Chief Signal Officer of the United States Army.

Another type of construction work was the location and erection of airdromes and flying fields. This work was carried on under the Designs and Projects Division of the Air Service, of which division Captain Charles G. Loring, '06, was chief. His duties consisted of the selection of suitable sites for airdromes, obtaining approval from American General Headquarters, and from French headquarters, and their transfer from the civilian owners. This latter task was no small one, for French farms are so minute that the pur-

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chase of a single field involved settlement with from five hundred to one thousand owners. He was also responsible for the preparation of plans and supervision of the construction by engineer troops. Captain Loring has written some description of these airdromes in the *Architectural Record* for April, 1919. In this article he brings out the fact that all airdromes were not exactly alike, but that each was located and built so as to be best suited for its purpose. Perhaps one of the most interesting features common to all was the irregular arrangement of the buildings to prevent them from becoming easy targets to hostile bombing planes. The sites generally selected were very flat, smooth hilltops, but even then much preparation was necessary before the fields were suitable. Shallow ditches marking the boundaries of the French farms had to be levelled off carefully, and the pebbles removed from the surface, since otherwise they would have been sucked up and so would have caused injury to the propellers of the machines.



A FILTRATION PLANT A FEW KILOMETERS FROM THE FRONT —
AT EUVEZIN. OCTOBER 22, 1918.

(U. S. Official)

Lieutenant J. C. Bollenbacher, '09, was engaged in this work as commander of the 45th Construction Squadron. He helped to start work on Air Service Production Center No. 2 at Romo-antin, the greatest in France. The buildings in this case were of steel construction, and Bollenbacher was in charge of erection. He says that, thanks to the wonderful spirit and versatility of his men, and by their splendid teamwork his organization, erected and braced with purlins forty steel trusses, each of fifty-foot span, in one hour and thirty-eight minutes, an average of one truss every two and a half minutes. It is not known whether this constitutes a record, but it was certainly a most creditable performance.

Another branch of engineering work in which a number of our men were engaged was that of the 20th Engineers, the Forestry Regiment. Of this work, Captain A. M. Mutersbaugh, '13, says, "The Forestry Division, so called, consisted entirely of the 20th Engineers. This regiment was increased by additions after arriving in France until it was larger than an ordinary combat division, made up almost entirely of engineer troops and labor battalions. I was assigned to this regiment soon after arriving in France, and placed in command of a sawmill operation at a little place called Avocourt, just south of

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Toul. There were a large number of these units just back of the lines and scattered all over northern and eastern France. The country was divided into districts, the largest of which was the Epinal district under Major S. O. Johnson.

"The job of these units in the Advanced Section was to get out railroad ties, and during the time we were using them, trench slats. They usually consisted of a little boulder mill of ten to fifteen thousand feet capacity, although by pushing and all-night work we increased this to twenty and thirty thousand. Their location usually depended upon our ability to find the timber, especially in places where it could be removed as speedily as possible, for the constant cry was for more ties. The usual timber cut was oak, beech, and ash, predominating in the order named. These forests were located, bought, and cut with the assistance and under the supervision of the forestry branch of the French Army. The forests were located as near as possible to the engineer dumps, and several times we were within a few miles of the front line trenches and subjected to bombing and shelling by the enemy."

There were vast amounts of other construction work, and it is unfortunate that we have comparatively meagre details regarding it. A few instances, however, have been recorded. Thus, we know that Major Nathan A. Middleton, '07, of the 23d Regiment of Engineers, had charge of the construction and maintenance of roads, directing the operations of some 17,000 troops. Major John H. Caton, 3d, '08, has given a few statistics which show the magnitude of the work performed under more or less similar conditions. In addition to his duties as battalion commander, Caton was highway and street engineer of Base Section No. 5. He gives a short account of some of their work as follows: "Twelve miles water-bound macadam road and fifteen miles corduroy (railroad ties) road were built; 46 miles French road were re-enforced; 30,000 square yards Belgian block pavement and 25,000 square yards concrete streets were laid; six quarries were opened, machinery installed and operated for crushed rock, producing 150,000 cubic yards." The stone used in this work was chiefly quartz and trap.

Another of our men who should be mentioned is Captain T. K. Meloy, '17, of the 604th Engineers, later transferred to the 1st Engineers. Captain Meloy assumes the responsibility for having built the "Rest Camp" at Knotty Ash, Liverpool. If one may judge from the replies sent in by Tech men, there are few indeed who saw service abroad who have not vivid recollections of this stopping place. Perhaps they will be interested to know under what difficulties the camp was constructed. Captain Meloy says: "I had the honor to be engineer officer and had the Royal Engineers to work with; construction of this camp had lagged for about six months without result, due to change of command and strikes. By the inspiration of one battalion of American engineers who broke the British workmen strikes, the speeding up by the Royal Engineers, heavy pressure from General Biddle and the English authorities, and the 'flu' panic, we managed to accomplish more in the two weeks than in all the time previous. We built about five miles of road and drained the camp — and it was some reclamation job, too."

Many of our men were assigned to fire protection duty. In January, 1918, Lieutenant Alexander Ellis, '08, submitted a report on the protection of all American docks, warehouses, and hospitals, against fire. This plan was adopted and Ellis was transferred from the 101st Engineers to the office of the Chief Engineer of the American Expeditionary Forces as chief of the Bureau of Fire Prevention.

In the meantime, Major Edward V. French, '89, was sent abroad, in response to a cabled request for a fire-protection expert, to take up this same work. The bureau, as we have seen, had just been organized by Ellis, when Major French arrived and succeeded Ellis as chief. His problem was a very severe one, and he says regarding it, "There were very large concentrations of value, and in places, serious hazards. Efforts were made to make the best possible use of all available means; water pails, barrels, and like small equipment, were developed as rapidly as possible; while large quantities of heavier apparatus were ordered from America. Contracts for automatic sprinklers in some shops were made, fire pumps and hydrants were added to water supplies built by our Army, wells and tanks were provided for fire engines and fire trains, and boats were improvised. There were a number of Tech men in the bureau, and they gave earnest

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service to this most important work of preserving invaluable supplies and safeguarding facilities vital for handling equipment."

How efficient the system produced was, may be judged from the statement of Lieutenant Garland Luffin, '18, one of the men working as a member of it, who states that the total loss from fire in the entire American Expeditionary Forces was approximately five million dollars. As there was practically no way of extinguishing a fire once started, and as almost every warehouse contained more than the above-mentioned quantity of material, it can be seen that the work of prevention was most effective.

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The signing of the armistice brought new problems. Immediately following its announcement the German army temporarily lost its organization and discipline. The first refugees and released prisoners of war entering the American lines brought stories of wholesale mutiny and disorder, and the first towns entered by the advancing troops showed evidences of the same. The German troops had broken their rifles against the trunks of trees, thrown away their trench helmets, and even in some cases, machine-guns. Ammunition belts and wicker shell-baskets were scattered in every direction, while such heavy equipment as guns, steam tractors, and automobiles lay everywhere abandoned. On many of these were written the words, "*Parol ist Heimat*," in other words, "The watchword is home." As time went on, however, these evidences of disorganization disappeared, and as our armies pressed onward through Luxemburg and the Rhineland there was little evidence that they were following a beaten or demoralized foe. Upon the contrary, there was every reason to believe that discipline had been restored, and that the retreat in the main had proceeded in an orderly and efficient manner.

The temporary breakdown in the German army did not become general till after hostilities had ceased, and up to the last minute systematic measures were taken to prevent a further advance by the Americans. Sergeant W. W. Hosmer, Jr., '06, 16th Railway Engineers, says: "The destruction of the Meuse River railroad to me appeared a shining example of the thoroughness with which the Germans carried out 'destructive' engineering. For a portion of the right-of-way nearest Verdun, everything was gone, rails, ties, bridges, culverts; next came a section where rails were in place, but every other rail joint on alternate sides was blown, as were the culverts. Further on, the unexplored charges were still in place at every other joint in the single line of rail. Further on, two lines of rail were in place, joints not mined, but the holes dug; all switches were blown.

"In a similar way you could trace, along the highway from Verdun toward Metz, commencing at the Hindenburg line, their methodical preparation for retreat. Tall Lombardy poplars lining the highway were incised at about head height on the road side, and loaded with dynamite. The exploding charge blew the trunks inward and the trees falling across the road from opposite sides blocked passage most effectively."

The roads were repaired as rapidly as possible. Private Roland H. Eaton, '17, of the 37th Engineers, gives this brief description of how the first trains were put through: "When the Army of Occupation started for the Rhine a detail was sent to Conflans, where it assembled two trains. These were fitted with bunks and a German electric lighting set, and we set out for Coblenz. We crossed into Germany at 6.00 a.m., December 1, being thus the first United States troops in Germany. We reached Coblenz on December 6, in time to see the last German troops march out the following morning."

Although his unit was perhaps the first section of American troops to cross the border, another Tech man was there before Eaton. As has been mentioned, Colonel H. M. Waite, '90, had been appointed a member of the Bridgehead Commission, and he had motored into Coblenz to arrange the details of the transfer with the officers of the German Staff, and had been assigned quarters at the *Coblenzzerhof*. He says: "Next morning we had a wonderful opportunity to see the German Army cross the Rhine. The hotel was directly in front of the old pontoon bridge. They passed in review in front of the hotel. It was a foggy morning and you could not see across the river. The bands played; colors

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(U. S. Official)

REPAIRING STANDARD-GAUGE RAILWAY DESTROYED BY THE ENEMY DURING THEIR RETREAT.
IN THE FOREGROUND IS A MINE CRATER CAUSED BY A CHARGE
PLACED BENEATH A SMALL CULVERT

were flying, wagons and horses were trimmed with green and colored paper; some wagons had four Christmas trees, one at each corner, decorated with paper. There was a noticeable lack of trucks, and many little Russian horses.

"As the officer at the head of each company reached the reviewing officers, drawn up on horseback in front of the hotel, every man in the company, as of one voice, yelled '*Hoch.*' Women were in the street giving the men cigars, cigarettes, and postcards. As they approached the bridge the band played '*Wacht am Rhein.*' The men would sing and they, with their colors, would disappear into the fog, all in wonderful order and discipline. This was the defeated, humiliated, and crushed German Army!"

Immediately after the occupation of the Rhineland, a provisional military government was set up, and quite a number of Tech men occupied important positions in connection with it.

As we have seen, Colonel Waite took charge of all public utilities in American Occupied Territory. After his return to the United States in February, 1919, the control of public utilities seems to have been placed under the headquarters of the Third Army at Coblenz. Major John H. Leavell, '07, then took charge of the work. Leavell had started out as a captain in the 316th Engineers of the 91st Division. He had taken part in the operations at St. Mihiel, the Argonne and the Escault, and had received the Distinguished Service Cross for valor at Audenarde, Belgium. In connection with his work in the occupied zone he acted as agent for the Inter-Allied Coal Commission, being charged with the distribution of all coal entering American Occupied Territory.

Colonel Stewart Godfrey, '07, became executive officer to the Chief Engineer of the Third Army. Godfrey, after leaving the Institute, entered West Point and at the outbreak of war was a captain in the Corps of Engineers. He went overseas with the 318th Engineers, but was sent to Tours as engineer personnel officer of the American Expeditionary Forces. Later he participated in the Meuse-Argonne offensive as assistant to the chief engineer of the First Army.

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Major Harry N. Williams, '92, served as president of the Inter-Allied Railway Sub-Commission, in charge of the German Imperial Railways in occupied and neutral territory, and as such was directly under the orders of Marshal Foch.

Captain David L. Sutherland, '14, was also a member of the headquarters at Coblenz and has achieved a somewhat remarkable record. It would appear that he has met more famous personages than any other Tech man of whom we have information. Among those mentioned by him are: the Prince of Wales, Marshal Foch, General Pershing, Marshal Petain, Marshal Haig, General Liggett, General Mangin, General Gouraud, General Rawlinson, General Plummer, General Ludendorf, and "last but not least, Fred Karns, '14," whom he met at Varennes and also at Wiesbaden.

After the occupation of the Rhineland had been completed, the Peace Conference at Paris settled down to arrange a "permanent peace." It was generally understood that Germany would be compelled to pay for the damage she had inflicted on the various allies by a heavy indemnity, but it was considered that this indemnity should be founded upon the actual damage inflicted, and accordingly, a committee of engineers was appointed to estimate the amount. The board appointed for this work was divided into various sections. One of these was the textile division. Three American members of this committee were: Charles T. Main, '76, of Boston, who was at that time president of the American Society of Mechanical Engineers, Major (later Lieutenant-Colonel) Dugald C. Jackson, head of the Electrical Engineering Department, and Major James F. Monaghan, '01. This work occupied some weeks. The commission visited France, Belgium and Italy, where their work touched that of Major Leeming. The head of the War Damages Board was General C. H. McKinstry and Colonel T. H. Dillon, now a professor of electrical engineering at the Institute, served as his deputy. In recognition of his co-operation with the French in the duties prior to the armistice, Colonel Jackson was awarded the grade of Chevalier of the Legion of Honor by the French Government.

Immediately after the cessation of hostilities, the entire American Army suffered from a severe depression of morale. This depression was due to several causes, among which may be mentioned hostile propaganda, physical exhaustion, the loss of comrades, disappointment at the unspectacular finish of the campaign, and nervous reaction, but above all to the fact that the men now found themselves with little to keep their minds alert, in a foreign land, and homesick. Under such conditions it would seem only necessary for a few hostile agitators to pass among the men to produce serious results; that this did not occur appears chiefly due to two factors, the Young Men's Christian Association entertainments, and the Army Educational System. This activity was also originally under the direction of the Young Men's Christian Association, but it was so integral a part of the Army that it seems proper to mention it at this point.

In September, 1918, Louis E. Reber, '85, Dean of the Extension Division, University of Wisconsin, was asked by the Young Men's Christian Association to go abroad as director of trade and engineering education of the American Expeditionary Forces. Dean Reber was at that time director of the Section on Education and Training, of the Emergency Fleet Corporation of the United States Shipping Board, being charged with keeping the shipping yards supplied with men educated along the various lines necessary. When the armistice was signed, he accepted the position abroad, and by January had actually begun the establishment of an educational system. In January, the only work that was being done was at army posts. Although over two hundred thousand text-books had been ordered for the engineering and trade work before Dean Reber left America, no books were on hand: in fact, they did not come for some months. The result was that teachers had to be found who were capable of improvising their own text-books.

Later, divisional schools were organized. These divisional schools were devoted largely to trade and vocational education, and the courses had to be adapted to the actual conditions which existed at each point. Before they were established the Army organized an "Educational Corps" and took over the Educational Commission and its work. At the same time arrangements were made by which Americans would study in the universities and schools of both England and France.

When the American Expeditionary Forces University at Beaune was organized,

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HANGARS AT ONE OF THE FLYING FIELDS LAID OUT BY CHARLES G. LORING, '06

Dean Reber took direct charge of the engineering college of the University as director, and retained general charge of the field work in engineering and trade instruction. Sixty-three courses were offered in the College of Engineering. One hundred and ten teachers were selected from the Army, and about a thousand students who had at least high-school preparation were entered; besides, about three hundred who did not have high-school preparation were given instruction in vocational subjects. Laboratories — mechanical, electrical, civil and mining — covering about twenty-five thousand square feet of floor space were equipped. The equipment was secured from the army depots throughout France, and was thoroughly up-to-date.

The subjects taught in the College of Engineering were similar to those taught in the technical schools of the United States. No effort was made to differentiate the years of a college course, but prerequisites were required in every case for any subject chosen. The admission requirements to the University were the completion of a high-school course. The placing of engineering students for the American Expeditionary Forces in French and English universities and technical schools came under Reber's supervision. The entire program was an immense success and Dean Reber was made a member of the French Academy.

Many other Tech men were involved. Colonel F. F. Longley, '05, appears to have occupied an important position, for in the *Technology Review*, for July, 1919, George A. Mower, '81, mentions meeting him at a dinner at the London American University and refers to him as being at the head of the army educational system, though the Colonel does not mention this assignment in his reply to the RECORD. Lieutenant Philip L. Small, '15, was one of the younger men engaged in the work, regarding which he says: "In February, 1919, I went to Paris with the Fine Arts Commission, and when the fine arts school at Bellevue opened I was in charge of all pencil sketching and all of the sketching trips throughout France. It was the finest educational enterprise in the fine arts that the United States has ever attempted and it was gratifying in the extreme to note that a preponderance of the staff and instructors were Tech men, as were also the best men among the architectural students."

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While the educational program was being perfected, the Peace Conference was continuing its work and the United States was soon drawn into the maelstrom of old-world politics. It was quickly found that information from European sources was unreliable, and it became necessary to arrange a service of information controlled by the United States. This service took the form of a service of intelligence, of which little is known and of which nothing can be said, and of a courier system, the nature of which can perhaps best be described by one of its members, Major Leslie W. Snow, '14, who says: "From the duties of its personnel, and the necessary privileges which it enjoyed, it sometimes reminded one of the King's Messengers of the past. There wasn't the glamour — the couriers didn't gallop in on noble steeds, but they did sometimes soar through the air at a rate which would have troubled Pegasus.

"They wore as insignia on their left sleeves a little greyhound embroidered in silver on a blue field; hence they came to be known in the Army as 'Silver Greyhounds.'

"In January, 1919, American Missions, political and economic, were to be sent to Vienna, and ultimately to many of the important cities in eastern Europe. It was imperative that a line of communications be established, by which messages could pass quickly and positively to and from these missions, no matter how far away they went; couriers either accompanied or preceded the first officials of a mission into new territory and the service commenced operating immediately.

"We opened up one route after another from Vienna, irregularly at first, then on approximately exact schedules, until finally we had connection with Prague, Crakow, Warsaw, Danzig (from Warsaw), Budapest, Bucharest, Belgrade and Trieste, and three times a week to Berne, for relay to Paris. There was no through telephone or telegraph service which approached the rapidity of the couriers themselves, so once they had departed they were lost until they turned up again.

"Between Vienna and Warsaw the railroad passed over a strip of territory which the Czechs had wrested by force of arms from the Poles, in spite of the armistice. The situation was one which required the greatest tact and firmness on the part of the couriers, but they always got through. It was not uncommon for a courier to secure a special train



AIR SERVICE HEADQUARTERS AT COLOMBEY-LES-BELLES

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or engine to give him a lift. 'American Courier' became a magic word and the leather mail pouches of the State Department were more effective than passports.

"The Poles, in all our association with them, were delightful people to meet and know. One of the most pleasant incidents which I remember occurred in the small border town of Sosnowice. I had been obliged to make a detour through Germany to pass around the disputed territory where Czechs and Poles had torn up the track and were fighting. The German officials had been diplomatically polite and the people openly hostile, but once across the border we were warmly welcomed. We arrived in Sosnowice quite early in the morning, and as the train was not scheduled to depart until the following midnight, we were guests of the Polish officers, whose hospitality came to a climax that evening in a banquet. Course after course came on in magnificent style until we wondered whether 'starving Poland' was real after all; certainly nothing like it in Vienna. The finale came in the form of genuine American ice cream, a huge brick perched on a large block of ice which was sparkling brilliantly from the light of candles burning in holes scooped out from the under side.

"When it was all over they took us to the station and put us aboard the train, which had been held waiting our somewhat tardy arrival. We had the best compartment, and a Polish sergeant accompanied us to Warsaw to guard the compartment from the mob which filled the rest of the train and tried to force its way in at every stop. There were no lights or heat (the night was twenty degrees below zero) and the windows had been knocked out and partly boarded over.

"The Courier Service was not without its dangers and there were close and curious escapes from death, especially during hostilities, but there were no fatalities.

"We were surrounded by spies, very frequently in the guise of charming women, who approached the couriers under pretext of asking information concerning relatives in the United States."

There were altogether 712 Tech men in the Staff and Service of Supply and their activities are numberless. The incidents which have just been given, however, it is believed are among the most representative and typical. There are many other stories which might be told and there are a number of these which have been omitted purely because space was not available. The various types of work described, however, it is believed give a very accurate picture of the work performed by those Tech men who served with our forces in France, but whose chief activities were other than actual combat.

CHAPTER VI

OUR MEN IN THE NAVY

While the work carried on by the Army was more spectacular than that of the Navy, it must not be forgotten that all military operations in France depended upon the maintenance of the command of the sea — a command maintained by the combined navies of the Allies. Only once during the war was this command of the sea ever seriously threatened, this crisis being occasioned by the immense increase in submarine activity in the spring of the year 1917. It was very largely the arrival of the American naval forces at this critical time which changed the situation from almost certain defeat to victory. In the American Navy there were 1063 Tech men.

The first great problem was to get across. Lieutenant Raymond D. Borden, '00, says, "I went over in a 176-foot converted yacht. It is nineteen hundred miles from Bermuda to the Azores and my ship had a steaming radius of nine hundred miles. You can imagine the nineteen days at sea that it took us to make the trip." However, the forces, including converted yachts, destroyers, and one-hundred-and-ten-foot submarine chasers, succeeded in reaching their destination and before long were patrolling the waters of the Bay of Biscay and the Irish Channel.

Ensign John S. Ferguson, '21, has given us some description of a typical day's work on a destroyer.

"Eight bells and mess. Eating when it is rough is an achievement. How the mess-cooks ever manage to prepare a meal on a pitching, tossing ship which threatens to roll over every instant is beyond understanding.

"Clang-clang-bang — bang-bang — bang. Transport sirens screech. 'Periscope two points on the port bow!' Transports and destroyers fire. The periscope disappears. The destroyers race about and drop depth charges.

"A wireless code-message announces that a group of sub-chasers a few miles away has located a U-boat; the captain requests and receives permission to join them. We find them waiting for the reappearance of the submarine, which they believe is damaged. A lengthening streak of oil appears on the surface. We steam across its head and drop two depth charges; the streak widens into a large smear, which continues to spread.

"We are recalled to the convoy. About five o'clock the white shores of Charente Inferieure appear on the horizon. The transports form single column, and piloted by the destroyers enter the Gironde.

"Radio reports French cruiser torpedoed and sinking. The captain puts to sea again to pick up survivors, but learns that a nearer ship has beaten us and we head for Brest, where we are due next morning. After sundown a thick fog settles on the water; nothing but gray can be seen. A dark shape suddenly appears, the bow of a ship, almost upon us. 'Hard right rudder.' 'Emergency speed ahead!' We miss her. About four in the morning the fog lifts. A warm off-shore breeze carries to us a sweet, languid odor of flowers, the breath of France. A star shell flares for an instant on the horizon, the signal of some lurking submarine. We pass the flashing lights of Belle Isle and Isle des Yeux.

"'Torpedo on the starboard bow!' yells the lookout, as a straight line of foam darts toward the ship, leaving a bright wake in the phosphorescent water. It is followed by a dozen others. Porpoises!

"As day is breaking we sight the Raz de Sein, and proceed through the Toulounguet Passage into Brest Harbor."

Once the convoy system was firmly established, the principal duty of destroyers consisted in escorting these groups of ships. Sailing a large number of vessels in company is in itself a difficult feat, requiring a high degree of seamanship. Furthermore, luck may at times play most uncanny tricks, as the following yarn from Lieutenant Clarence I.

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Justheim, '18, may indicate. "We were steaming in single column and the Commodore's ship had already passed over the bar, when, without any warning, our steam steering gear refused to work. The after division was rushed to the poop deck and with the captain on the bridge directing we proceeded, steering by hand. There was no alternative, with the ship astern, bearing down on us and shallow water on either side. In heaving in our port anchor, which had been lowered nearly to the water's edge in readiness for any further trouble, the wild-cat on our windlass snapped and our anchor and chain were carried away."

The troop ships were manned entirely by navy men, and their responsibilities were only a degree less than those in the destroyer crews. Those who remained long on this duty had encounters with those terrible summer hurricanes which sweep the Atlantic. One of our men, a soldier, in writing home tells of such an adventure.

"There weren't many at breakfast. As police officer I had to inspect the ship immedi-



(From The National Geographic Magazine)

A SUBMARINE-CHASER IN HEAVY WEATHER

ately afterwards and you can imagine what I found. Those poor cow-punchers and farmer boys crowded in the 'tween decks' with the ship plunging and surging like a wild bronco — well, you can imagine. The officers were all sick too, the General and myself being the only two, I think, who stuck it out, and that inspection nearly cost me my breakfast. Luckily the weather was warm, and the men, though drenched to the skin by spray, were able to stay on deck. Towards noon the wind increased and soon was blowing from nearly dead ahead at about fifty miles an hour; the ship was making fifteen, and the driven spray stung till it could not be faced. Pretty soon things began to break loose. A life raft was blown from the after deck-house and fell among the men. Still the old boat plugged ahead. The ships on each side rolled and pitched like skiffs and we could see one taking water over her bows, while her propeller beat the air at every lunge."

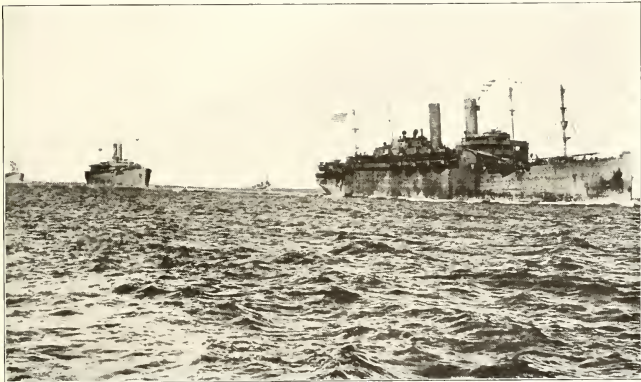
More serious weather conditions were sometimes encountered, as in October, 1918, when the transport "Otranto" went down. Although a number of Tech men were in the convoy, none actually saw her sink for reasons quite clear from an extract from the diary of Corporal Forest K. Foster, '10. "Sunday, October 6, 1918. 8 A.M. We are kept below

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decks, and the air is suffocating. The storm is at its height, and we cling to some support to prevent having our brains dashed out. Occasionally water comes flooding down the hatchway to our deck, where it washes the débris from side to side. With a tremendous roar, a huge wave hits the vessel, and we think she has capsized, but no,— she slowly rights herself.

"11.00 A.M. We are now in the Irish Sea, and it is much calmer. We are allowed on deck, and how cool and refreshing seems the air! The high headlands of Ireland and Scotland are on our right and left. At last we have reached Europe. But the 'Otranto' which sailed so gracefully on our left is missing."

Once a transport, or any other vessel, separated from its convoy, it was liable to have plenty to think about besides weather, as the following story, contributed by Second Lieutenant Arthur E. Page, '19, may indicate. "The capping event of a voyage already



(U. S. Navy Official)

A TYPICAL CONVOY

filled with mishaps occurred on the last day of August, 1918, one hundred and eighty miles south of Cape Race. The west-bound convoy had split up several days before, so we were traveling alone. The day was so hazy that one was unable to make out an object more than three or four miles. I saw an object which on first glance appeared to be a sailing vessel. A few seconds later there was a flash and then another; two splashes followed between the stranger and our ship. Acting on my first impulse I reported to the bridge: 'Vessel holding target practice four points off port beam.' This was often repeated as a good joke on me. We were the target.

"As a third splash appeared much nearer, the general alarm was rung. While we were swinging our stern to the 'sub' our little six-pounder forward cracked four times, the last two shells going through our own rigging and passing over the bridge so close that the gunnery officer said afterwards he felt the breeze. Meanwhile, our five-inch fifty-one gun aft got into action. The last two six-pound shots and one from the five-inch landed together with but two small splashes, both very close to the 'sub.' We believe the U-boat was damaged by this group of shots, for immediately it swung broadside to.

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PLANTING THE NORTH SEA MINE BARRAGE

(U. S. Navy Official)

"Just as we came around a couple of shots landed about where we would have been if we had not changed our course. The 'sub' was using both its guns; we were making short zigzags with only the after gun in action. There was a delay of a few seconds to cool the piece with water, and the gunnery officer on the bridge roared, 'Fire, for God's sake, fire.' On the instant a Negro mess attendant who was stationed amidships grabbed a fire extinguisher and dashed madly aft. After the 'sub' was out of our range a smoke screen was made, and half an hour later we ran into a fog bank. It seemed a miracle to all aboard that we escaped without a scratch to either the men or the boat.

"We found out later on that no other vessel reported this U-boat after this time; while before, the naval authorities were receiving reports about its operating in that vicinity. Although we do not know for certain what we did to the 'sub,' yet this fact seems to indicate we put it out of business."

When the destroyer accompanied the transport, the affair was quite different, for no Hun however bold then dared to show his conning tower, let alone attempting to use his guns. Nevertheless, the German undersea commanders were skillful, and occasionally they succeeded in getting in with a torpedo even in the midst of a convoy. Lieutenant Charles K. Cummings, '96, had a part in one of the best known of these encounters. He says, "On September 5, 1918, the U. S. S. 'Mount Vernon' (formerly 'Kronprinzessin Cecilie'), while homeward bound from France, was torpedoed by a German submarine. She had sailed for New York on the afternoon of September 4 in company with U. S. S. 'Agamemnon' (another transport) escorted by six destroyers. On the morning of the fifth, there was a light southerly breeze, smooth sea, an unusually clear atmosphere, and a bright sun. At 7.57 a.m. the convoy was proceeding in line abreast, 'Mount Vernon' guide with 'Agamemnon' a thousand yards on her starboard beam, at a speed of eighteen knots and zigzagging. The destroyers were stationed according to custom ahead and on the flanks, except that the flagship, ordinarily used as an advanced scout, was out of position astern owing to temporary engine trouble, a circumstance that undoubtedly had much to do with what followed.

"A submarine's periscope was sighted by 'Mount Vernon's' lookouts, distant five

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hundred yards. A shot was instantly fired from the starboard forecandle gun, the projectile falling close to the periscope. Immediately afterward from the same direction, a torpedo was seen approaching. The officer of the deck, acting with great coolness, in a space of seven seconds sent for the captain, put the rudder hard right in an attempt to avoid the torpedo by paralleling its course, sounded the whistle, signalled for emergency full speed, glanced at the master-valve to make sure all water-tight doors were shut (which they were) and rang the general alarm calling all hands to collision quarters. The torpedo struck abreast of a bulkhead, separating the two after groups of boilers, tearing a ragged hole in the side twenty feet long by twelve high, through which approximately seven thousand tons of water poured in, flooding three compartments and causing the ship to settle within twelve inches of her limit of buoyancy. Thirty-five men, all members of the engineer force, were killed outright and thirteen more were injured, two of whom died later. The loss was particularly large owing to the fact that the morning watch was being relieved and had not left the fire-rooms. Those who were not killed by the force of explosion were burned to death by flames sucked from under the boilers, suffocated by gases, or drowned by the intruding water which gave little time for escape, especially as the hatchway ladders had been blown away.

"The engines, however, fortunately continued to run, and the forward boilers as well as all the main steam lines were found uninjured. Owing to the rupture of the pressure feed-lines most of the water in these forward boilers was lost, with a consequent drop in steam, but the emergency salt-water feed was quickly connected, allowing steam to be gradually built up.

"To maintain speed was now all important to prevent the submarine from trailing the ship submerged. 'Agamemnon' according to doctrine sheered off at full speed with three destroyers, the other three standing by 'Mount Vernon,' spiralling around her and firing depth-bombs which, if they did not destroy the submarine, probably went far toward discouraging further attack. The limiting bulkheads (those forward and aft of the flooded compartments) were tight and showed no signs of weakness, but as the safety of the vessel now depended on their holding, they, as well as the deck above, were heavily shored and braced. By nine o'clock 'Mount Vernon's' speed began to increase, and an hour later reached fifteen knots, which was maintained.

"The ship under escort of three destroyers was headed for Brest. During the afternoon the wind freshened to a stiff blow, raising a steep, choppy sea, and the vessel, which hitherto had been practically on an even keel, began gradually to list to port. This list, due probably to wind pressure and accumulation of water on the lee side, steadily increased until by midnight it had reached eleven degrees, causing a good deal of alarm; but fortunately before matters grew worse, the ship gained the southern approaches of Brest, where early on the morning of the sixth she was brought safely to anchor."

On arrival in port it was found that the "Mt. Vernon" was nearly broken in two, being held together below the water line only by a few plates of the keel. That she did not sink is due in part to Professor Hovgaard, of the Course in Naval Architecture. Early in the war Professor Hovgaard had been called to Washington to give expert advice on various matters pertaining to ship construction. Two of the questions upon which he was called in as a consultant were methods of ballasting transports to counteract the effect of their immense movable loads, and the design of bulkheads and special sub-divisions of the hull for better protection against torpedo attack.

Any one familiar with ship construction, who has read Lieutenant Cummings's account must have been struck with the fact that the "Mount Vernon" did not sink in spite of the fact that three of her compartments were flooded, for, generally speaking, when a merchant vessel receives such injury she is beyond hope. In the case of the "Mount Vernon," thanks to Professor Hovgaard's suggestions, a number of changes has been made. The longitudinal bulkhead which divided the ship was pierced in such a manner as to permit water entering one side of the vessel to flow across and thus prevent her from capsizing. As an additional precaution, on the No. 2 deck a special wooden bulkhead had been installed which prevented the water from spreading to other portions of the ship—a contingency which would have been exceedingly dangerous.

TECHNOLOGY'S WAR RECORD

It is interesting to note that these alterations were under the supervision of Stephen B. Boyd, '91, Chester W. Wilson, '10, and Lieutenant-Commander George A. Andrews, '17, who had charge of the work involved in converting the "Mount Vernon" from a German merchantman to an American transport.

The work of protecting our ships was by no means confined to purely defensive measures; but of all the methods which were tried for defeating the undersea boats probably none was so unique, or involved so many interesting situations, as the work assigned to Commander R. C. Grady, '05, who was in charge of a division of American submarines which operated from the southwest coast of Ireland, and whose duty it was to hunt down and destroy hostile U-boats. Grady states that his principal diversion was making sarcastic reports on the marksmanship of American destroyers. He says: "We made four attacks on the Huns and they made two on us. Two of our attacks should have been suc-



THE EFFECT OF A TORPEDO
THIS PICTURE WAS TAKEN BY JOHN D. WRIGHT, '23, AFTER THE FIGHT AT DURAZZO

cessful, but in one a premature explosion of the torpedo about one hundred yards before reaching the target spoiled the chance. In the other, remarkably fast manœuvring on the part of Fritz caused two close misses. The AL-4 just dodged a German torpedo by diving, the men in the forward compartment hearing the torpedo pass overhead as the boat went under.

"The AL-2 was returning from patrol when an object was sighted. Her course had just been changed toward it when an explosion occurred on the starboard quarter about eighty yards distant, about five feet of periscope being plainly visible on the outer rim of the disturbance. AL-2 turned and dived toward the periscope in order to ram. Nothing was hit, but the listeners could plainly hear the signals and propellers of another submarine — then silence. It was assumed that the German submarine had been sunk by a recurring shot fired by itself. The British Intelligence Service later confirmed the loss of a German submarine that had been operating in that area.

"AL-10 got mixed up with two American destroyers and one dropped several charges on her, which threw everything out of kilter. However, she managed to blow her

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air tanks, come to the surface, and make her recognition signals before the destroyer opened fire. The destroyer captain and the submarine commander had been roommates at Annapolis, and the remarks exchanged over the incident nearly spoiled a long friendship.

"My own chance for a patrol came only when one of the commanding officers was laid up, when I would take his boat out. On two occasions my recognition signals were answered with four-inch shell. Two auxiliaries once fired about twenty shots, finally forcing us to dive, which was a violation of orders under those circumstances, but which seemed to be our only chance."

Another means of checking the ravages of the submarine was the laying of the great North Sea mine barrage. In addition to the fact that mines were of an entirely new model, and that once armed they were unbelievably sensitive, the ships had every possible difficulty to contend with in the way of fog, rough weather, uncertain tides, currents, and hostile interruption.

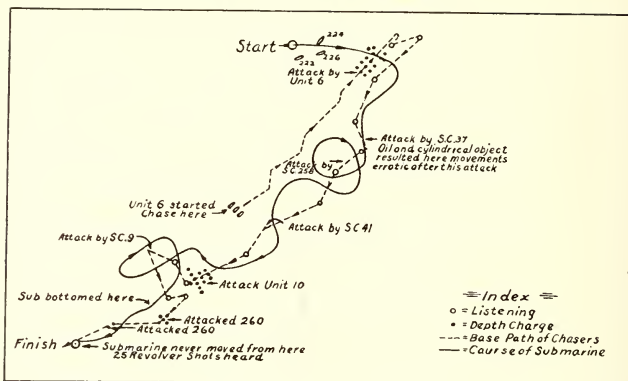
Some of the difficulties can be realized from the diary of Lieutenant Raymond D. Borden, '00, extracts from which follow: "July 10. Had the sun about 11.00 this morning, just long enough to get a sight and get back on our course. Found the northwest end of the field about midnight. July 11. Still very cold, windy, and raining. About 1.00 this afternoon picked up a periscope on our starboard quarter. Owing to boiler trouble could not manoeuvre, and did not go back for the 'sub.' August 27. Came off watch at midnight. After turning over deck to my relief went below and turned in without undressing; fog very thick. At 1.51 awakened by a crash. Looked out of port and saw we were alongside a large camouflaged steamer. Going on deck found we had mixed up with a large convoy travelling at full speed and without navigation signals or lights. The ship showed up through the fog not over fifty yards ahead, and in order to avoid being cut in two the officer of the deck struck him on the starboard bow. Drove our stem into his number one hold for about ten feet. Backed away and 'stood by' until the captain of the freighter reported that the lumber in his number one hold would float him until he reached port. Then turned around and stood out to sea on duty. Our stem is a sight but we are not making much water. Arrived at the rendezvous in time and immediately commenced plotting premature explosions. On this excursion three rows of mines were planted for a stretch of about fifty-four miles. Plotted a great many 'prematures' on this trip. After reaching the end of the field we started back for Inverness. Weather still thick but clearing."

A number of other Tech men served in the mine-laying fleet, while others watched the enemy to prevent him from interrupting the work. This was notably the case with our men in the seaplane patrol, at Killingholme, England, from which Knight B. Owen, '16, William G. Sprague, '16, and a number of others operated. Lieutenant (J. G.) John F. Staub, '15, was engaged in this work and was lucky enough, on July 10, 1918, to discover a German submarine and bomb it.

During the later operations the Germans were allowed to get news of the operations of the mine-planters, as it was hoped that their main fleet could be drawn into final action. With this end in view, the mine-planters were secretly conveyed at a considerable distance by battleship fleets, including the Sixth Battle Squadron, composed of American ships, and on board of these a number of Tech men were serving, including Lieutenant J. H. Currier, '14, on board U. S. S. "Wyoming," Lieutenant (J. G.) Eugene P. Chase, '06, on board the same ship, and Lieutenant Percy E. Tillson, '06, on board the U. S. S. "Florida." As we all know, the German fleet never came out, but the barrage proved a most effectual weapon against submarines, accounting for at least twenty-three of these vessels.

Mine planting was regarded as the most dangerous duty in the navy. A base hospital was established to take care of casualties, but oddly enough, so Lieutenant Borden informs us, only one man was lost, a fact largely due to the skill of another Tech man, namely, Ambrose M. Merrill, '04. Merrill was superintendent in the drafting rooms of the Hull Division at the New York Navy Yard. His problem was to arrange for the stowing of one thousand mines on each planter in such a manner that they could be dropped over the stern in a continuous stream at the rate of one every twenty seconds. At the same time it was necessary to so protect them that they would not endanger the ship in a rough

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(From The Literary Digest)
 DIAGRAM OF ENGAGEMENT IN WHICH SAMUEL S. OTIS, '16, TOOK PART ON SUBMARINE-CHASER 258

sea. How successful he was is indicated by the fact that not a single serious accident occurred aboard any of our ships engaged in this work. It is also interesting to note that the firing mechanisms of the mines were manufactured under the supervision of Lieutenant J. K. M. Harrison, '10, and that the floats which were used as buoys to mark the limits of the mine field were designed and manufactured by Alexander H. Twombly, '87.

Another means of attacking the submarines was that of hunting them with subchasers and electrical listening devices. The one-hundred-and-ten-footers or subchasers of the United States Navy were the direct outgrowth of the famous "Hoop-la" designed by Commander A. L. Swasey, '98 (see page 5). These boats had originally been designed for coast patrol work, but with the development of listening devices (see page 275), they were able to actually trail the U-boat, and it is said that these craft destroyed more of the enemy's submersibles than any other single type of vessel.

A great many of our alumni and undergraduates helped man the subchasers, and one of them, Samuel S. Otis, '15, took part in the encounter described in the *Literary Digest* for June 12, 1919. Otis was on board sub-chaser No. 258, and the following account of the fight is quoted from the article just mentioned.

"The engagement which is illustrated occurred early one morning in the English Channel. A small squadron of chasers discovered an enemy craft moving slowly up the channel submerged. Forming for the attack, they rushed over the spot where their listeners indicated the U-boat to be, dropped a pattern of depth bombs and then withdrew to take observations.

"Feverish activity and the sound of hammers ringing against the ship's side were heard. The submarine engines would then start up and stop, start and stop again.

"Further attacks were delivered, and more noise came to the listeners from the hold of the submarine. Evidently the first depth charge had taken good effect and the enemy's crew were making a last desperate effort to reach the surface.

"Then there was a dead silence, broken at last by twenty-five sharp reports like revolver-shots. The crew, giving up in despair, had committed suicide. The loss of this submarine was later substantiated by the British Intelligence Department."

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Later on Otis served aboard one of our own submarines and had a narrow escape, when a British destroyer came very near running her down as a result of misunderstanding recognition signals.

The sub-chasers generally hunted in packs, and they have the honor of participating in what may be termed the only real naval engagement in which American ships were engaged — the raid on the German submarine base at Durazzo. A brief account of the affair has been contributed by Chief Machinist's Mate John D. Wright, '23.

"The town of Durazzo is situated on the western coast of Albania, and was the largest Austrian submarine base in the Adriatic. Twelve American submarine-chasers were detailed with four large cruisers, two English and two Italian, to raid and destroy it.

"The expedition started, divided into two groups, the submarine-chasers in the lead, in fan-shape formation, with the cruisers half a mile in rear. The sea was calm and the sky was overcast. Overhead an Italian airplane preceded us on the lookout for floating mines. At eleven o'clock the Albanian hills were sighted and shortly afterward the white houses of Durazzo. Half an hour later the fleet was on the edge of the great Austrian mine field.

"A highly dangerous task was now entrusted to the American submarine-chasers, namely that of steaming in close to Durazzo, and thus drawing out the Austrian destroyers which guarded the base. The cruisers could not proceed further on account of the mine fields, and halted about seven miles off shore. However, it was perfectly possible for the submarine-chasers, owing to their light draft to advance within two miles of the great base.

"The four Austrian destroyers soon steamed out and gave chase. Ten of the submarine-chasers turned around and went at full speed toward the supporting cruisers. One, however, steamed north and another south, at the same time taking careful bearings on the channel which the Austrians were using through the mine fields. The destroyers kept on in hot pursuit, thereby accomplishing their own downfall. When they were almost five miles at sea, and had nearly overtaken the 'chasers,' to their great surprise the cruisers appeared above the horizon and opened a deadly fire which got rid of two destroyers imme-



AUSTRIAN DESTROYERS LEAVING DURAZZO IN PURSUIT OF SUBMARINE-CHASERS.
THE PICTURE WAS TAKEN BY JOHN D. WRIGHT, '23, FROM THE CROW'S NEST
OF ONE OF THE CHASERS, WHICH HAD TURNED TO ONE SIDE

TECHNOLOGY'S WAR RECORD

diately. The cruisers now gave chase and the destroyers which had been the pursuers became the pursued. They were soon overhauled and dispatched with a broadside apiece.

"In the meantime, the channel leading into Durazzo had been located and signals were sent to the ten fleeing submarine-chasers to turn about and proceed to Durazzo through the designated channel. The way now lay open for the cruisers to follow and they accordingly closed to a range of about one mile of the submarine base, firing steadily.

"The Austrian land batteries replied weakly upon the submarine-chasers and the larger ships, but fortunately for us, the Austrians were apparently very ill at ease. Had they been perfectly cool it is doubtful whether the chasers would have been hit, since the batteries were situated too high on the hills to reach us when we were close in. Three Austrian submarines came out, but they were quickly put out of business by depth charges, and at the end of an hour the Austrian batteries ceased firing. Three submarine-chasers



A BRITISH CRUISER OVERHAULING AUSTRIAN DESTROYERS AT DURAZZO

were then detailed to proceed right up to the base and sink any vessels in the harbor by gun fire. They did so, accounting for two torpedo boats and numerous harbor craft by lively manœuvring and superb gunnery, in spite of the fact that the torpedo boats were more heavily armed than any of the chasers, and that their crews put up a spirited resistance. By three o'clock in the afternoon the submarine-chasers and the cruisers threaded their way back again through the narrow passage in the mine field, leaving behind the great Austrian sea base a heap of smoking ruins — its port a cemetery of sunken ships.

"One British cruiser had fifty feet of its stern blown off by a torpedo from one of the three submarines which came out of the harbor. No men were injured and this was the only scar left upon the allied fleet."

When the armistice was announced it would appear that the celebration of the Anglo-American Grand Fleet equalled anything in Paris and London; Lieutenant Percy E. Tillson, '06, at that time serving on board the U. S. S. "Florida," gives this account of it.

"The 'Silent Fleet' is no longer silent.

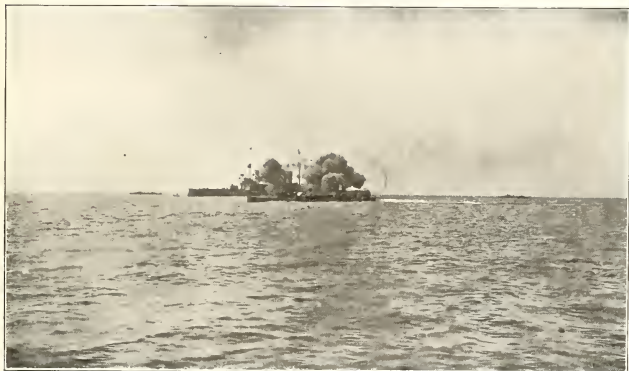
"This afternoon the following signal was received: 'C in C to General, negative Sixth Battle Squadron. In accordance with the traditions of His Majesty's Service you will

OUR MEN IN THE NAVY

splice the main brace at nineteen hours.' This meant that, with the exception of the dry American squadron—the Sixth—an extra ration of rum would be served at seven o'clock and the jubilation would begin.

"During dinner the celebration started and, cutting dessert, I rushed to the 'top side.' There was a continuous din of whistles and sirens; rockets and colored signal bombs were in the air; many huge fingers of light (searchlights) were sweeping the sky. Our own darkened ship had its rails jammed with impatient 'gobs,' eager to enter the fray, while our immediate neighbors, both British and American, also began to show signs of restlessness. Finally the 'old man' gave the word and we were off. Our eight big searchlights opened up; truck lights and blinkers began to wink and the siren and steam whistles roared; even the Klaxon on the gig was manned.

"The band was broken out. The quarter deck became a thing of the past. The



A BRITISH CRUISER SINKING THE LAST AUSTRIAN DESTROYER

'gobs' just swarmed and yelled. A 'peerrade' was formed, the band in double file, followed by a most disorderly mob of 'gobs', and around and around they went. Finally, led by a regular 'two-striper' with broom in hand, a considerable gang of officers joined in, much to the satisfaction of the 'gobs.' A number of ships, including our own, broke out our flag and the 'white ensign' (Britain's naval flag) each in the beam of a searchlight. Finally a picket boat from H. M. S. 'Inflexible' ran alongside, and up came a party of officers to secure a bunch of us to celebrate on their ships, champagne being one of the inducements. Their leader was hoisted up on shoulders, where he remained, a broad grin on his face, while his national air was played."

Later on Tillson with a number of other Tech men was present at the surrender of the High Seas Fleet. His description of it is interesting, not only from the idea it gives of the spectacle presented, but also because of the light it throws upon the precautions against surprise or treachery.

"About nine-fifteen, word came from the tops that a Hun balloon and smoke were off the starboard bow. General quarters call was sounded and we had to go to our battle stations below. (Later we learned that the blimp was a Britisher acting as guide.)



(From The National Geographic Magazine)

SWEEPING UP THE NORTH SEA MINE BARRAGE

"Until about twelve-thirty, I was on duty at the plotting board keeping the range of our 'target' Hun so that the sights might be set for instant action. Our turrets were not trained, but their indicators were set at the correct angle, their sights at the correct elevation, and the ammunition hoists loaded and at the breach of the guns. Our first target was the battle cruiser 'Seydlitz,' at a range of about forty-five hundred yards. She passed on, and for a while we had the third in line and finally the last of the capital ships, a battleship of the Koenig class. We kept her at between thirty-five hundred and five thousand yards and each ship ahead of us covered a partner in the same way. On the other side at approximately the same range they were being covered by British column. During most of this time the visibility was poor, and when I was relieved for about five minutes, and ran to the 'top side' for a glimpse, only three of them could be seen, the foremost one just melting into the mist. I had been relieved for luncheon and, while I was eating, 'secure' was sounded as we were then well within the Forth.

"As we passed further up the Forth, they slowed down and we steamed along their entire line and finally passed through the inner nets while they hove to without. It was a remarkable sight. Here was a strong navy, well equipped and apparently in excellent condition, being turned over without a shot. Comparisons were made by our officers with the action of the Spaniards at Santiago, who had not feared to take a chance against almost certain defeat, and indeed one could not look upon these ships without feeling that the Hun seamen must have lacked courage."

Hostilities had now ceased, but the Navy was faced with another and a very serious problem, namely, that of sweeping up the great North Sea mine barrage. These mines, an American invention, were in some respects the most fiendish engine of destruction ever devised by mind of man. They exploded not upon contact, but upon the mere approach of iron or steel. There were seventy thousand of them distributed over an area of about six thousand square miles and each carried a charge of three hundred pounds of T. N. T. The Germans had discovered the frightful nature of these mines soon after they were put in place, but had never been able to devise a means by which they might even closely approach them. It now became the duty of some one to experiment on the best means of sweeping up this horrible menace to shipping.

The first attempt was made with two small wooden sailing vessels, the "Red Fern" under command of Lieutenant Noel Davis, and the "Red Rose," commanded by Lieutenant H. D. Shaw, '14. An account of their first attempt is given in the *National Geographic Magazine* as follows: "The little vessels stood up to each other, passed the sweep, and headed across the field beneath a threatening gray sky, while the barometer went down with alarming rapidity. Then, grr-ung! A towering column of white water impelled

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by the explosion of three hundred pounds of T. N. T. sprang high above the masts of the 'Red Rose.' The explosion virtually lifted the little vessel from the water shaking her until it seemed as if the timbers in her hull would fly apart. When she settled down again, the sea gushed in between the planks until the pump could scarcely keep the vessel dry.

"This was the first mine. Five others followed, most of them, fortunately, further astern. It was indeed a pretty sight to see these tiny vessels tacking and wearing in perfect unison, keeping station on each other by furling topsails or streaming sea anchors."

The work was halted when the gale foretold by the morning's sky broke with the fury of a hurricane, early in the afternoon.

Shaw tried to heave-to under storm-jib and staysail forward and triple-reefed mizzen aft. First, the jib went, followed by the topmast, then but a bare pole. A few hours later the mizzen-boom snapped, and for the next thirty-six hours the "Red Rose" wallowed at the mercy of the waves.

A number of British men-of-war were sent out to give aid but most of them could not weather the gale and returned. Nevertheless, the "Red Rose" reached port on Christmas morning.

Describing the later work Shaw says, "During the final sweeping of the barrage, I was in command of a division of six sub-chasers. These craft followed astern of the sweepers and sank floating mines by rifle and machine-gun fire; most of them were mined several times."

Shaw also calls our attention to the fact that Ensign K. C. Richmond, '17, served throughout this affair on the staff of Rear Admiral Strauss, under whose direction the operations were conducted. His work appears to have been of a distinguished character, as he was decorated with the Navy Cross, as was also Shaw.

Our graduates were not entirely confined to the American Navy. One of them, Captain T. Riojo Ohnuki, '09, of the Imperial Japanese Navy has given us this account of his activities: "While I was serving as an Engineer of Japanese repair ships at Tsing Tau, China, on the beginning of this great war with German navy, engaged so often with enemy. At last we Japanese navy captured German colony at Tsing Tau. After finishing



(U. S. Navy Official)

THE GERMAN FLEET STEAMING TO ITS SURRENDER, LED BY A BRITISH BLIMP

TECHNOLOGY'S WAR RECORD

this war, I remained at Tsing Tau to organize captured dock-yard and also to refloat captured German ships which were sunk by the enemy.

"In the spring of 1916, I went to Italy to inspect our submarine which was built by Fiat San Georgio for our Navy.

"I was decorated by Japanese Emperor with 'Third Rising Sun decoration' in 1916, and also decorated by Italian King with 'Fourth Order of Saints Cross' [San Maurizio and San Lazzaro] by above reason."

NAVAL AIR SERVICE

One important method of hunting down submarines was that of locating them by means of seaplanes. Tech men were in the United States Naval Air Service, and to some of these, rather remarkable adventures befell. Particularly was this the case with Ensign



ONE OF THE SURRENDERED FLEET, SEEN IN THE DISTANCE, PASSING H.M.S. "QUEEN ELIZABETH" ON THE LEFT, AND THE U.S.S. "WYOMING" ON THE RIGHT

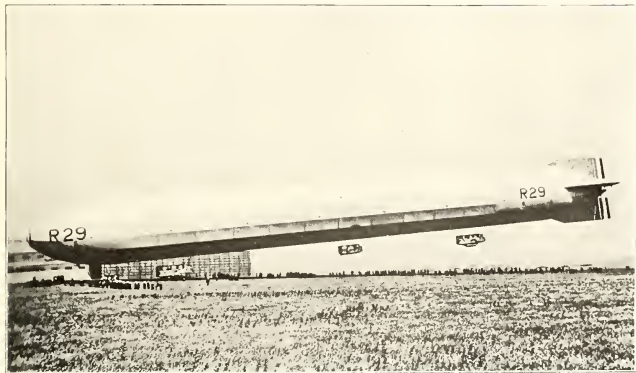
[later Lieutenant, j. g.] Knight B. Owen, '16, and a companion, both of whom were stationed at Killingholme, England, near Hull. On the fifteenth of May, 1918, while on patrol duty one hundred and fifty miles from land, the motor suddenly went dead. When the machine fell, their wireless apparatus went out of commission, and to make matters worse, a fog soon shut down, which made their chance of being picked up exceedingly slim. The position of the two men was desperate, for they had neither food nor water on board. For four days and nights, they lay in this manner, practically at the mercy of wind and wave. Under ordinary circumstances it seems probable that they would have died of thirst, for the water from the radiator was undrinkable due to rust and grease, and it would appear their lives were saved by the moisture of the fog. They succeeded in breaking some of the stays in one of the wings, and thus made sort of a cradle, in which one of them could sleep, while the other watched.

Another day and another night passed, and their situation became critical in the extreme. Finally, early on the morning of the fifth day, a faint shadow loomed through

NAVAL AIR SERVICE

the fog. Owen, who was on watch at the time, scarcely knew at first whether it was a ship or not. However, he took a chance and fired the last three signal cartridges from his Blair pistol. In a moment, a shadow swung toward them, and they were able to make it out as a British destroyer. A moment later came the hail, "Who are you?" "Two American aviators. We have been adrift five days and nights," was the reply. "Well I say, do you want any help?" came back from the destroyer. It is needless to say that help was very grateful.

Another of our pilots who saw service of the most active type was Ensign Nugent Fallon, '06. Perhaps the most noteworthy incident in which it is known that Fallon was involved was a combat with a submarine which took place in the North Sea. It is not clear from descriptions of this action whether hostile aircraft were also present or not. In any case, Fallon's pilot received a bullet through the neck which seemed likely to cause



R-29—THE BRITISH DIRIGIBLE UPON WHICH JOSEPH WARREN HOMER, JR., '19, SERVED AS THIRD OFFICER A SHORT TIME BEFORE HIS DEATH

his death. Fallon, however, left his own seat at the machine gun, and succeeded in crawling to the pilot, to whom he administered first aid and then brought the seaplane safely in. For this and other acts, he received the highest commendation from his commanding officer and from Admiral Sims.

Another of our men who did a great deal of patrol work was Ensign Joseph W. Homer, Jr., '19, son of Joseph W. Homer, '75. Homer's work was chiefly that of escorting transports through the danger zone and searching for hostile submarines. Although his career was not so spectacular as those of Owen and Fallon, he nevertheless had several rather exciting experiences. On one occasion he was blown some eighty miles off his course and found it necessary to land on the coast of France, a short distance west of the trenches. If he had been blown a bit more to the eastward, he would have found himself either interned or a prisoner of war. Homer did an unusual amount of flying, for among the American pilots assigned to this work he stood second, having to his credit three hundred and one hours and ten minutes. He was highly thought of by his commanding officers, and it was expected that he would have a brilliant record, but in October he was taken with influenza and died at the United States Naval Hospital in London, on November 9, 1918.

TECHNOLOGY'S WAR RECORD

As will be recollected, however, it was not until after the armistice was signed that the Naval Air Service came fully to the attention of the public in general, its *début* at that time being chiefly due to the spectacular trip of the NC planes, the first aircraft to cross the Atlantic. The whole affair was conducted by the United States Navy Department, the design and construction of the boats being in the hands of the Department of Construction and Repair.

Since the actual design of the boats was carried out by officers of the Navy Department working in conjunction with the Curtiss Aeroplane Company, the whole credit for the design cannot be given to any one man. Three men, however, who were perhaps most largely responsible for it, were Commander J. C. Hunsaker, '12, formerly instructor in aeronautical engineering at the Institute, Commander G. C. Westervelt, '08, and Commander H. C. Richardson, '06. Lieutenant (j. g.) Charles J. McCarthy, '16, also had a prominent part in the design, particularly in the calculation of stresses and the design of certain parts, while Donald R. Husted, '16, of the Curtiss Engineering Corporation, made extensive tunnel tests as a check on the design. The hulls of the boats were built in several different places, that of the NC-4, the only one which completed the trip, being constructed by the Herreshoff Company, where it came under the general supervision of James Swan, '91. The wings and tail surfaces were built by Locke & Co., under direction of Edward C. Locke, '72. It would appear that some of the engines, which were Liberties, were built by the Packard Motor Car Company, and these were officially accepted by William H. Turner, '18. The parts were then sent to Garden City, where they were erected in large hangars, which had been built for that purpose by Captain S. J. Stone, '01, while the actual construction of the machines was supervised by Lieutenant (j. g.) George T. Woolley, Jr., '15, Lieutenant (j. g.) Theodore P. Wright, '18, also acting as inspector. When the planes had been completed, they were moved to Rockaway Beach, where they were housed in hangars built by John G. Ahlers, '10. In preparation for the flight the engines were under the care of Lieutenant (j. g.) Raymond P. Miller, '18, who had been detailed as power-plant inspector for the ships by Lieutenant A. E. Tuttle, '17, executive officer of the New York Naval District; Lieutenant C. J. McCarthy, '16, was present as the representative of the Bureau of Construction and Repair.

When the boats were ready to put to sea, Commander H. C. Richardson, '06, was assigned as one of the pilots of the NC-3, while McCarthy accompanied them during the flight to Newfoundland. Here, after refitting, the ships set out upon the great adventure, in which as will be seen, the forces of nature were able, to some extent, to upset the calculations of man, with the result that during the latter portion of the voyage, the crew of the NC-3 were obliged to battle with the elements, under much the same circumstances as their Viking ancestors. Commander Richardson's account of the affair follows: "The three seaplanes left Trepassey on Thursday, May 16. Both the NC-1 and the NC-3 landed on account of the thick weather, but the NC-4, which was more fortunate, sighted land and reached Horta safely.

"When the NC-3 landed the wind was blowing about twenty-five knots, and the seas were running eight feet high. We quickly discovered that the front edge of the wings had settled. The engine foundation, for the center forward engine was badly damaged; the hull also was leaking.

"We shifted the radio generator to a position in the wake of the port propeller, and attempted to communicate our position to the patrol vessels. Owing to some failure in the electrical connections, however, no signals were received from us. On the other hand we could hear destroyers not over forty miles away, and shortly after landing we caught a radio compass signal from the U. S. S. 'Columbia' at Horta, which showed that we were southwest of that place. We next took account of our provisions. Besides an emergency ration apiece we had a few jelly sandwiches and some chocolate almond bars; the only fresh water was that in the radiators.

"Saturday afternoon we put over two canvas buckets as a sea anchor and these served to keep us head to the wind, and also prevented us from drifting astern too rapidly. Sunday morning the wind began to increase. About eight o'clock the rear edge of the left wing broke off and Moore and I crawled out to cut the wreckage adrift. We had barely

NAVAL AIR SERVICE

got it cleared when the starboard wing caught in the water and had to receive the same treatment. About eleven o'clock the left wing tip pontoon broke loose and rapidly drifted away. It was now difficult to keep from rolling over to port, and to insure against this one member of the crew stood watch on the right tip to keep the float in the water. During the course of the afternoon the wind reached the velocity of close to sixty miles an hour and the sea reached a height of thirty feet. It held throughout Sunday night and Monday morning till it seemed only a question of hours until the wing structure would disintegrate, and we should capsized.

"Lavender kept on trying to get communication through the wireless, but without success, though he heard the patrol vessels almost constantly. In this manner we learned that the NC-4 had arrived at Horta and later that the crew of the NC-1 had been rescued by the Greek steamer 'Ionia.' We then heard that the search for us was starting one



NC-3 READY TO START UPON HER FLIGHT

hundred and fifty miles to the west of where we were and was headed still further west because we had last been heard of in the vicinity of Station 18.

"We found that we could steer about ten degrees to the right or to the left of the wind and Sunday afternoon and night we were able to lay a course toward the passage west of San Miguel. In the height of Sunday's storm we made speed astern averaging twelve knots, and at times when we failed to reach a wave crest before it broke, we would be driven like a surf board at thirty knots or better. About four o'clock Sunday afternoon when the clouds lifted we saw the slopes of Pico forty-five miles to the northwest. As night approached the wind eased up a bit and changed direction so that we could hold a course towards Ponta Delgada, and early Monday morning Towers got a star sight which showed that we might reach port that day. While Towers was communicating his information to me, Moore, who was on the lookout on the right wing reported land in sight.

"During the afternoon we could see a storm building up towards the northwest and about two o'clock it broke in a squall with heavy rain which again drove us off towards the southeast. This squall lasted about an hour and very nearly capsized us once when

TECHNOLOGY'S WAR RECORD



(U. S. Navy Official)

THE NC-3 AT PONTA DELGADA. NOTICE THE NAVAL CUTTERS PLACED UNDER HER WINGS TO PREVENT CAPSIZING

our sea anchor carried away. With a view to reducing the violence of the seas we started to drain oil overboard, but we drove so fast to leeward that the oil slick was ineffective. At another time we tried to put over the standard sea anchor, but its action was so violent that it carried away in about three minutes. We also tried to make a sail by spreading torn wing cloth over the guy wires, but we soon found that this was hazardous as it destroyed our power to control our course and made the ailerons ineffective. As soon as our sea anchor carried away we improvised another from a bundle of cloth and wires, using the radio antenna as a tow line, and this contrivance behaved satisfactorily.

"When the squall was over we found we could again steer for Delgada, but were in danger of being driven on the beach, which is very steep and rocky. About two miles west of the harbor the wind drove us in so strongly that we had to head across it, and, as a result, almost at once lost our starboard float, and nearly capsized. We then started up the center rear engine, while Moore crawled out on the wing and cut loose the float. McCullough and I had our hands full trying to keep the ship balanced by use of the ailerons.

"We were not sighted until within six miles of the Island when the U. S. S. 'Harding' got underway from the harbor of Ponta Delgada and came driving toward us, with the seas breaking clear over her bridge, for the wind was still blowing twenty-five knots. Towers signalled her by Aldis lamp to stand by and be ready to lower a boat, and also requested her to ask the 'Melville' to have two boats ready to go under the wings as we came in the harbor. The wing engines were now started which greatly improved our control, and by use of the ailerons we were able to work safely across the wind to our mooring. Here launches from the destroyers were so anxious to aid us that several of them fouled each other and our sea anchor but they soon got clear. Two cutters from the 'Melville' were lashed under our wings and we were safe in port."

OUR MEN IN NAVAL SERVICE IN THE UNITED STATES

While many Tech men were thus defying submarines and the elements, upon, below, and above the Atlantic Ocean, others were busy in the United States, helping sup-

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ply their comrades with ships to sail or fly. Mention has already been made of the large number of Tech men included in the personnel of the Department of Construction and Repair. One of the first problems which confronted that department was the repair of those German ships which had been damaged by their owners to prevent their being used by the United States as transports or freight carriers.

A number of our men took part in this work. The only one, however, who has given us a detailed account is Commander R. D. Gatewood, '06. Gatewood was in charge of the shops, dry docks and repair facilities for the Panama Canal and Panama Railroad. His two most interesting jobs, however, were the repairs on the transport "Von Steuben" and on nine ex-German merchant vessels which had been interned at Balboa and Cristobal and in Peruvian ports. The extent and nature of these repairs can be judged from Commander Gatewood's account which follows:

"The 22,500-ton transport 'Von Steuben' was damaged in a collision with the 'Agamemnon.'

"The vessel arrived the day before New Year's, and without stopping proceeded through the Canal and into dock. After pumping down it was found that the entire bow would have to be rebuilt, involving a new stem to be forged in Panama, one new hawse pipe, the pattern and casting for which would have to be furnished by the Balboa shops, and the renewal of between twenty-five and thirty plates, and about eight to ten frames on each side abaft the stem.

"Work was started with two twelve-hour shifts, there being insufficient men available to work eight-hour reliefs. A conference of the foremen and the leaders among the men was called and the extreme urgency of the case explained. So well did the force respond that these repairs, together with others to the stern of the vessel made necessary by a second collision, and about one hundred thousand dollars' worth of minor repairs and alterations were all completed in nineteen days. The vessel left the plant on the morning of January 20 in all respects ready for sea, to resume her work in transporting American troops to France.

"Four of the nine ex-German vessels handled were those interned in Colon harbor when the declaration of war with Germany was made. All of the four vessels were completed within ten weeks after the declaration of war. The other five were much larger vessels, one of them being a ship of eleven thousand tons. It would be hard to imagine more wide-spread and deliberate destruction to a vessel than was found when these ships were examined at Balboa. All the cylinders of the main engines except the high pressures had been cracked by exploding dynamite in them or by the use of hydraulic jacks and battering rams. All the essential parts of such auxiliary machinery as pumps, steering engines, anchor engines, and winches, had been broken or thrown overboard. The boilers were particularly bad, having been dry fired until in many cases the tubes and furnaces were melted together and the shells so warped as to be beyond repair.

"Repairs were pushed with energy. The engine cylinders were repaired by oxyacetylene and electric welding processes, by cast-steel and cast-iron patches and in one case by a forged patch of boiler plate; where necessary new liners were cast. The auxiliary machinery was also put in shape almost entirely from material produced in the canal zone. Fourteen new boilers, however, were purchased in the United States, shipped to the Isthmus and installed. In this connection it is pertinent and curious to note that the old boilers were removed, and the new boilers were installed by two 250-ton floating cranes designed and made in Germany."

The transfer of these ships from the Peruvian Government was arranged for by J. H. Gardner, '94, who was special representative of the United States in charge of the examination and appraisal of enemy tonnage in Peruvian ports, and who was also charged with the general supervision of their repair.

Work was carried on at the Boston Navy Yard quite similar to that at Panama, and a number of our men were involved in it. For instance, Stephen B. Boyd, '91, as assistant chief draftsman of the Hull Division, had charge of the drafting work in connection with the repair of the "Mount Vernon" (formerly the "Kronprinzessin Cecilie"), the "America" (formerly the "Amerika"), and a number of other German ships and their

TECHNOLOGY'S WAR RECORD



LAUNCHING OF THE DESTROYER "WARD"

(U. S. Navy Official)

conversion into transports. The actual repairs were largely under the direction of Chester W. Wilson, '10, assistant shop superintendent, while the outside work was under the direction of Lieutenant-Commander George A. Andrews, '17, an officer of the Regular Navy in the Construction Corps, who served first as assistant outside superintendent, and later as outside superintendent of the Hull Division.

The next problem was that of speeding up the construction of destroyers, and in this connection a group of Tech men performed at least one brilliant feat. The idea of building fabricated ships with great rapidity had received considerable attention, and some had been launched in extremely short time. It may be said that there is no radical difference in the method of building a fabricated ship from that employed previously, except that the various parts are completed with such accuracy before being assembled that practically no work is necessary on the ways except to rivet the parts together. Until the war it had been generally believed impossible to perform this feat, and even after it had been successfully accomplished in the case of freight steamers, the idea of applying it to the building of a destroyer, the most complicated and most delicate of all ships, appeared nothing short of revolutionary. Nevertheless, this idea was conceived by a Tech man, and put through by other Tech men. The result was a world's record in rapidity of destroyer building — a record which has not since been equalled.

OUR MEN IN NAVAL SERVICE IN THE UNITED STATES

The incident in question was the building of the United States torpedo-boat destroyer "Ward." An account of this affair is given by one of the participants, Lieutenant Irving B. McDaniel, '16. "Every one in authority connected with the 'Ward' is a Tech man. They are — Commander James Reed, '07, George Atkins, '04, Commander Paul Fretz, '08, Lieutenant Charles Colby, '17, W. R. Wood, '97, Commander J. O. Gawne, '10, Lieutenant H. E. Saunders, '16, H. M. Hunt, '02, and yours truly.

"The keel was laid on May 15, 1918. This Navy Yard had the record for launching a destroyer, the 'Shaw,' in forty-two days, but we decided to beat our own record by launching the 'Ward' in thirty. On May 17 Camden, N. J., came out with a world's record of twenty-eight days for a fabricated freighter. [This was also built under the supervision of Tech men.] Orders were then given to put the 'Ward' in the water as soon as possible, and seventeen and a half days (sixteen and a half working days) after the laying of the keel she was launched. We had originally considered launching a 'tin-can,' that is, just the hull, but to make our record unquestionable, we finished practically all the work on the ship, including deck-houses, masts, skidbeams, boats, railings, deck fittings, gun foundations, and stays, which were all in place and permanently riveted up.

"I think the best way to appreciate Mare Island's record is to compare the 'Ward' with Camden's freighter. A freighter has straight lines and the majority of her sections are identical, even her bow and stern are formed on straight lines. A destroyer is like a yacht, very fine lined; the plates and frames are constantly changing and have to be worked. A freighter is composed largely of cargo holds and has few decks. A destroyer has four decks that are built for fighting; the space is confined and does not allow the use of many men. Oil-tight tanks, gun foundations, magazines, many bulkheads, and special steel to withstand battle-fire are a few of the many problems that are unknown to freighters. Camden used three eight-hour shifts and had all the men needed. Our supply was limited owing to local conditions — private yards got most of the men as they pay them more. The first five days we worked two shifts and the rest of the time we worked only one. Camden's freighter probably weighed about two thousand tons when launched, while the 'Ward' weighed only 471. This comparison would seem to our disadvantage but not to those familiar with the two types of ships. The Camden ship was fabricated all over the East and assembled at Camden; the 'Ward' was built entirely at Mare Island. Every rivet and tank was tested before launching.

"The credit belongs first to the workmen, because nothing can be done without them, and their performance was above praise. The rest of the credit goes to the system and supervision of Tech men. Commander Reed and George Atkins had charge of the mold loft and might be termed the efficiency engineers on the job. They broke nearly every axiom in the ship-building game; they proved for the first time that with good supervision an entire destroyer may be 'lifted' directly from the loft. Washington prevented them from making more than ninety-five per cent of the templates in this manner, but, nevertheless, they revolutionized the system. Colby and Wood had charge of the material; it was on hand before it was needed. Commander Fretz was outside superintendent and in charge of all the work, and it was my luck to be his assistant. He knows how to handle men and get work out of them. He has also had wide experience, and he used every bit of it on the 'Ward.' Not a second was lost, and yet no other ship suffered in the amount of work going on her, and we were working on over twenty ships at that time. Commander Gawne was shop superintendent and was responsible for all shop work on the 'Ward.' Lieutenant-Commander Saunders was planning superintendent and had charge of the drafting room, and Hunt was in the machinery division drafting department. My job consisted mainly in getting the boat ready on the ways and launching her. Usually you have thirty days to prepare; they gave me five. My gang sweated blood and the man greasing the end of the ways had to run to get out of the way as the 'Ward' came down."

Perhaps next in importance after the building of the destroyers was the construction of submarine chasers and mine planters. The one-hundred-and-ten-foot submarine chaser was developed from the patrol boats designed by A. Loring Swasey, '98.

In February, 1917, about the time that diplomatic relations were broken off, Swasey was summoned to Washington and asked to design a patrol boat suitable to cope

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with the submarine menace — a boat which should be possessed of such speed as to outstrip a submarine, which should be able to carry guns sufficiently heavy to sink a submarine, and which should be able to keep the sea in all kinds of weather. The resulting design was the one-hundred-and-ten-footer, of which mention has already been made and which actually accounted for more hostile U-boats than any other single type of craft.

Just prior to the outbreak of war Swasey offered his services to the Government and was promptly commissioned a lieutenant-commander in the Construction Corps of the United States Naval Reserve Force. He was then made superintendent constructor of the New York District, having charge of the construction of something like six hundred and fifty ships, and was also appointed a member of the Appraisal and Commandeering Boards, the duties of which consisted of selecting yachts and similar vessels to be acquired by the Navy and fixing the prices which the owners were to receive. As superintendent



SUBMARINE CHASERS AND MINE-PLANTERS BUILT UNDER THE SUPERVISION OF LORING SWASEY, '98

constructor of the New York District he had supervision over the construction of one hundred and fifty submarine chasers of his own design, and also some five hundred other vessels, including a large number of mine planters. Most of the vessels engaged in laying and sweeping up the North Sea barrage were fitted up under Swasey's supervision.

In addition to this, he was charged with the inspection of all paravanes — a device for decreasing the effectiveness of German mines — and also the inspection of all hull material for the New York District, which was the largest in the country.

After the armistice he was made a member of the Board of Review, to arrange for the sale or return of vessels which had been taken over by the Navy to their former owners.

Some of the activities of Hunsaker, Westervelt and Richardson in connection with the design of naval aircraft have already been mentioned. The Naval Aircraft Factory at League Island was organized and commanded by a Tech man, and among his assistants there were a number of others. The factory was built and organized under the direction of Commander Frederick G. Coburn, '08. He was ably assisted by Major G. R. Wadsworth, '98, who, it will be remembered, was one of our pioneers at the Plattsburg Camp in

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1915. Wadsworth was originally assigned to Langley Field, where he spent some time in the summer of 1917, testing out Italian, French and British planes, with the idea of determining which was best suited for quantity production in American plants. He was transferred to the Naval Aircraft Factory at League Island as chief engineer, and had charge of the organization and operation of all engineering activities at the plant. These activities included the design and direction of drawings, and the testing and inspection of the machines, which were chiefly large flying boats, designed for patrol and bombing purposes in the North Sea. Paul T. Thompson, '98, and M. William Weiscopef, '18, also served at the factory as civilians. Both acted as aero-mechanical engineers, Johnson being especially charged with work in connection with electro-plating, galvanizing and heat treatment, while Weiscopef handled the design of various parts of the planes and flying boats under construction.

Interesting work in connection with the aircraft was also carried on by Lieutenant R. A. D. Preston, '10. As we all know, since graduation he has been engaged in work on balloon and airplane fabric for the Goodyear Tire and Rubber Company. At the declaration of war he was building a dirigible hangar and testing field. As these were the only places in the country where instruction could be given with dirigibles, the company was asked to train a company of twenty naval officers as dirigible pilots. This class of officers, together with the enlisted men who handled the balloons, was commanded by Lieutenant (later Commander) L. H. Maxfield, '06. Preston trained the men, managing to work in spite of the severe winter of 1917-1918, and at last developed the school into a self-sustaining organization. By June, 1918, he was needed elsewhere, and was commissioned a lieutenant in the United States Naval Reserve Force, being assigned to the duty of development and maintenance of coast patrol dirigibles throughout the United States. He tuned up our largest dirigible, the C-1, and as pilot flew the big ship which was under command of Major Smith, United States Marine Corps, from Akron to Rockaway, Long Island, via Washington, the first successful airship flight from Akron to the coast.

Before leaving the work of the Navy, something should be said of a much less spectacular activity, concerning which the average civilian never heard during the war, namely, the work of those assigned to the patrol of the United States coast line, sweeping for mines, and aiding vessels in distress. Lieutenant Fred B. Thurber, '04, was engaged in this duty from August, 1917, to March, 1918. On February 2, 1918, he had charge of the relief expedition to Nantucket Island, which had been frozen in for two weeks and was running short of provisions. For the remainder of the war he was engaged in patrolling and sweeping for mines in the neighborhood of Nantucket Shoals; during this period his vessel actually saved twelve ships totalling 21,000 tons, and assisted in salvaging others amounting to 414,000 tons. Lieutenant Thurber received a citation for the aid rendered by him on September 25, 1917, to the U. S. S. "Texas," which had grounded.

Just as in the case of the other services, those of our men in the Navy, whose work has here been mentioned, simply serve as examples. The whole story, if written, would require many books the size of this one. Nevertheless, it is believed that these accounts will show how our men by courage and skill aided their Nation in the great struggle. Casualties in the Navy were not high as compared with those in the Army, and perhaps living conditions, except on the smaller vessels, were not so severe as those among the troops at the front; yet if any man who served in the Army should feel that perhaps his friends in the Navy had an easier time than he, let him recall the dull, foggy stretches of the North Sea, the swaying masts, the reeling deck of the transport, the submarine guard on forecastle and bridge. Let him remember the nights when he stood by the rail, straining his eyes for a single speck, and let him remember the shock which he felt, when a streak of foam appeared and a long, dark shape shot across the trough of the sea—a shock none the less severe because the "thing" was merely a porpoise.

It is to our men and to their comrades in the navy of the United States, and in the navies of the Allies, that we owe the fact that after the sinking of the "Lusitania" not one Tech man's life was taken by a submarine. It is to them that we owe our success in Europe, and it is to them that we owe our safe return to our native land.

CHAPTER VII

MILITARY SERVICE IN THE UNITED STATES

Of our men whose work was chiefly performed in the United States, the place of honor belongs to Lieutenant Frank W. Peers, '18, of the Sanitary Corps. Early in 1917 Peers joined a Red Cross ambulance unit, which was transferred to the Army and a year later he obtained admission to the Army Medical School, Washington, D. C. Having successfully completed the six months' course, he was graduated in October with a commission of second lieutenant, Sanitary Corps, and sent to the Yale Laboratory School at New Haven. It will be recollected that it was about this time that the frightful epidemic of influenza was sweeping the United States. Volunteers were called for to become subjects for experimentation to determine the cause of the disease and its method of transmission. Six officers offered themselves for this duty, among them Peers. The data obtained proved of value, and it is pleasant to relate that, unlike a more famous experiment in the case of yellow fever, none of the volunteers succumbed to the disease. It should be realized, however, that, in offering themselves for the test, they placed themselves deliberately in the path of death; a death horrible in form, and encountered without the support of comrades, or the excitement of strife. They have said of their action, "We were denied foreign service by the machinery of the Army, but in this way we found opportunity to go over the top."

It is unnecessary to describe conditions in the United States at the outbreak of war. There was general insufficiency of supplies; many indispensable weapons, developed during the fighting abroad, were entirely non-existent. Had they been present, there were no trained men to operate them, let alone complete organizations ready to take them into battle. Furthermore, our army was inexperienced in work on a large scale, and there was no precedent upon which to determine many important policies. As we might naturally expect, the most important work of Tech men in the United States consisted of aiding in the supply of arms, ammunition, equipment, and shelter for the Army, in organizing new units and services, and in experimental work to devise new weapons.

The United States Army depended for its supply of materials chiefly upon two departments, namely, those of Ordnance and Quartermaster, though the Signal and Sanitary Corps also looked after the procurement of much of their own material. In the Ordnance Department, those Tech men who were members of the Regular Army, were naturally the first in action. Thus Major (later Colonel), C. M. Steese, '08, who had been working as an ammunition expert at the Frankford Arsenal, had been recently returned to the Coast Artillery for a year's work in the line. At the outbreak of hostilities, he was recalled and sent abroad to erect an ammunition assembling plant.

First Lieutenant (later Lieutenant-Colonel) Henry C. Davis, '11, at the outbreak of war was stationed at Benicia Arsenal, but was recalled to Washington, where he became chief of the Loading Section, Ammunition Division, being placed in charge of engineering work in connection with loading high-explosive shell, drop bombs and trench warfare projectiles.

The most interesting work, however, seems to have fallen to Captain (later Lieutenant-Colonel) E. J. W. Ragsdale, '10. Ragsdale, previous to the war, had been at work on the design of heavy railway artillery, and is in fact responsible for some of the features which were incorporated into the sixteen and eighteen-inch howitzers, the first of which, at the date of armistice, were nearing completion. He had become intensely interested in the European war, and frequently urged upon his superiors the necessity of experimental work in gas and flame warfare, particularly the necessity of devising defensive measures against these innovations. He met with little encouragement, being informed that the United States had no expectation of entering the European contest, and that since all of

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these methods were contrary to the laws of land warfare, there was no use investigating them.

With the outbreak of war, however, the situation was altered, and Ragsdale quite naturally was appointed chief of the Trench Warfare Section, Ordnance Department. For a captain, the assignment was a somewhat large one, for the Trench Warfare Section was at first expected to develop practically all weapons peculiar to European warfare, though articles of individual equipment such as trench knives, shot-guns and helmets were not included. Some experimental work had already been done, and preliminary designs were quickly drawn up, but at this point the difficulties began. Of them Ragsdale says: "The work was not easy, owing to the fact that this type of weapon was subject to seasonal, national and temperamental changes. Unanimity of opinion as to the value of different types simply did not exist. The representatives of our allies were intemperate in their condemnation or praise of types in use or discarded. In August, 1917, for instance, the Mills hand grenade received notations indicating the sixty-third revision of Mark 2. The revision of our own types was preserved in the secret archives and no significant data appeared on the drawings. Our experimentation and research had to be basic, owing to the fact that nobody — no matter how supposedly expert — could be believed.

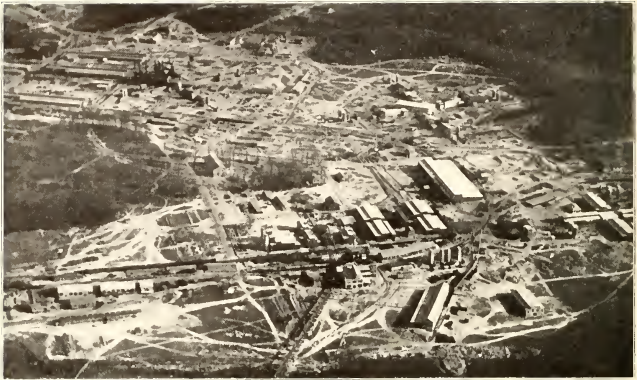
"Another difficulty arose from the fact that, while some munitions for allied governments had been manufactured in this country prior to our entrance into the war, no trench-warfare material had been placed here. Our manufacturers were, therefore, not educated along these lines. Furthermore, where foreign designs were employed, we found their drawings and specifications hopelessly inadequate. During production, many of our advisers in the American Expeditionary Forces became converted to the schools of opinion abroad, and there are none of the one hundred and fifty odd articles which we put out that were not changed during production. Tactical changes also influenced quantity and design."

CHEMICAL WARFARE SERVICE

It would appear that the hand-grenade and allied problems should have been sufficient for one ordinary man, but gas was considered a weapon of trench warfare and thus Ragsdale became responsible for the supply of gas-warfare material. Inasmuch as there had been no experiments carried on along this line by the American Government previous to the war, it was necessary to place sections of the work in the hands of different departments which had previously dealt with matters more or less allied; thus while the Ordnance Department took charge of the supply of materials, the Corps of Engineers undertook to organize and train troops in the offensive use of gas. Gas defense was placed in the hands of the office of the Surgeon General, while research was conducted by the Bureau of Mines which had been previously working on toxic gases encountered in industry. Luckily this division of authority did no damage, for all research was carried on at the American University, Washington, and by common consent at this point, representatives of the Bureau of Mines met with officers of the Engineer Corps, Ordnance Department and Surgeon General's office, carrying on the work in excellent co-operation.

Colonel Ragsdale's duty involved arrangements for the manufacture and loading of gas shell. He encountered difficulties, some of them more or less amusing. Thus one manufacturer was only too glad to produce gas of the most poisonous nature, but flatly refused to allow shells to be loaded anywhere near his plant. When asked why, he replied: "Well, we are used to handling gases, but I don't like these shells. I understand that they sometimes go off and blow people all to pieces." Nor did any amount of explanation change his views. It finally became necessary to arrange for a government loading plant, and official sanction was obtained for the erection of such a unit upon a portion of the Aberdeen Proving Ground, known as the Gunpowder Reservation. The project was first approved in June, 1917; construction was commenced on November 15. The scheme at this time was to secure the toxic gas in bulk from various chemical concerns, but few manufacturers cared to produce the gases in large quantities; no community desired to have such stuff in its vicinity and the dangers involved in transportation were most serious. As a result it became necessary to plan not only for loading, but for manufacturing as well.

TECHNOLOGY'S WAR RECORD



GENERAL VIEW OF THE EDGEWOOD ARSENAL, THE GOVERNMENT LOADING PLANT FOR GAS SHELLS
BUILT AND ADMINISTERED BY PROFESSOR WILLIAM H. WALKER

In the meanwhile other phases of the work were also being carried forward. The research had been placed in the hands of the Bureau of Mines, under Director Van H. Manning, who at once set about organizing a staff, and naturally called in men who had been previously associated with the Bureau. Among these was George A. Burrell, a graduate of Ohio University. It seems to have been through him that the Surgeon General's office first heard of Bradley Dewey, '09. In any case soon afterward, Dewey's assistance was requested in a consulting capacity, and a little later he was commissioned major, a rank from which he ultimately rose to that of colonel. Dewey in turn suggested that Professor W. K. Lewis would be a good man to have on the work, and he was called, together with William Green, '05, Professor Lewis' partner in business, Professor, (later Colonel) William H. Walker, Professor (later Lieutenant-Colonel) James F. Norris, and a very considerable number of Technology graduates and graduate students. The work was now carried on in three main divisions: research directed by Mr. Burrell, assisted by Professor Lewis; the production of offensive gas directed by Ragsdale and the production of gas defensive equipment under direction of Dewey.

It was during this period that many Tech men rendered most important service. Thus in defense work, Lewis and Dewey were particularly prominent. Dewey, as we have seen, was placed in charge of gas defense measures and the production of equipment for the Medical Corps, while Lewis soon became the foremost authority on defensive research problems. Both of these men literally worked night and day, generally traveling from one city to another during the night, and spending the day in visiting various laboratories and factories. The chief object of Lewis was to direct the work of laboratories all over the United States toward perfecting the necessary chemicals for gas defense, while Dewey conferred with rubber companies, and other possible producers of masks, instructing them in the requirements for the manufacture of these articles. It is said of Lewis that his particular ability lay in separating the good and essential from the bad or unessential in research work, and it was very largely due to him that an ample supply of absorbent charcoal, soda lime, proper rubberized fabric and suitable eye pieces were developed. It is

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said that no man could possibly have contributed more of his bodily energy, and the testimonials from various men in his department relative to his unflinching enthusiasm and devotion to duty, are certainly most sincere tributes to his unselfish devotion.

Dewey's field of activity was slightly different, being that of producing the articles called for by the researches of Lewis and his associates. It is said of him that he was one of the few men in Washington who realized that the country was at war, and that matters of personal inclination, private ambition, or the expenditure of a few hundred thousand dollars more or less, were of no importance when compared with the one great problem of developing a sufficient supply of protective apparatus. Like Lewis he worked night and day, and did not hesitate to exceed his authority whenever he deemed it necessary to hasten production. Many of the first contracts for masks were placed by verbal agreement, it being well understood by the makers that no money had been appropriated for the work, and they might never receive payment. The first supply of masks was not up to the standard which might have been desired. Upon the other hand, they were delivered only about one month from the time that they were first called for, and the experience gained in manufacturing them was such that there was subsequently no difficulty in obtaining exactly what was wanted promptly and in practically unlimited quantity.

When American troops reached Europe, an ample supply of masks was ready, and these masks, while not so good as others subsequently developed, represented the highest state of the art at that time, and throughout the war furnished our men better protection than that afforded either by the masks of our allies or our opponents.

Green became Burrell's executive. His work during the summer of 1917 was chiefly that of securing men, classifying them, getting them through the red tape required by the Civil Service and other laws relative to appointments to governmental bureaus, and assigning them to the various tasks which they were best fitted to perform. He also gave assistance in questions relative to accounts, purchases, and in administrative details in general.

Other interesting work which was taken up at this time was that carried on by Colonel William H. Walker ('89, by adoption). Colonel Walker had joined the research organization in August, 1917, having been asked to assume the direction of the investigations in the possibility of obtaining helium in commercial quantities for use in airships. He studied the natural gas fields of Texas and Oklahoma, and contracted for the erection of a large plant in which helium was extracted from this source. A little later on, with the formation of the Chemical Service Section in October, 1917, Doctor Walker was commissioned lieutenant-colonel and placed in charge of this work as director. In this capacity he organized, equipped, and dispatched to France a complete chemical service for the American Expeditionary Forces.

In January, 1918, a general reorganization of the Ordnance Department was effected and, as a result, Doctor Walker was promoted to the rank of colonel, transferred from the Chemical Service Section to the Ordnance Department, and appointed commanding officer of the newly-organized Edgewood Arsenal on Gunpowder Neck. This work, as we have already seen, had been under the trench warfare section of the Ordnance Department but the continued increase in the magnitude of gas warfare operations abroad had made it imperative that this work become an independent branch.

This arsenal had originally been designed as a filling station for toxic gas shell and incendiary bombs. It was first hoped that the manufacture of toxic and other chemical warfare material would be conducted in private chemical plants throughout the country and the material sold as such to the filling plant. This plan was early found to be impractical; not only were the chemical manufacturing industries of the country fully taken up with the increased demands upon them for their standard products, but they realized that both the experience gained and the plant necessary for manufacturing toxic gas would be obsolete when the war was over, and also, that it would be extremely difficult to maintain a labor organization to work with poison gas while the demand for labor throughout the country was so intense. Edgewood Arsenal was quickly expanded to manufacture phosgene, chlorpicrin and mustard gas. The manufacture of these materials is difficult under peace conditions, and, under the stress of war, it required most careful oversight to insure types of construction, discipline and methods of operation which would insure com-

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parative safety to the operators. The methods employed for loading toxic material into shell were of necessity different from those in common practice in the manufacture of high explosive shell and shrapnel, and required much thought and extreme care. The supply of raw material for the production of toxic gas presented an added difficulty for the reason that the chemical industries in the United States had never been developed on the scale sufficient to produce the quantity of basic material required.

It was necessary, therefore, to construct at Edgewood, for example, the largest chlorine plant in the world. This plant had a capacity of one hundred tons of chlorine per day with an equivalent amount of caustic soda, and was in operation when the armistice was signed. On this date, Edgewood Arsenal was manufacturing, monthly, 2,100,000 pounds of phosgene, 3,000,000 pounds of chlorpicrin, and 1,800,000 pounds of mustard gas. The production of this latter material was being rapidly increased so that, by January,



FILLING HAND GRENADES WITH WHITE PHOSPHORUS — EDGEWOOD ARSENAL

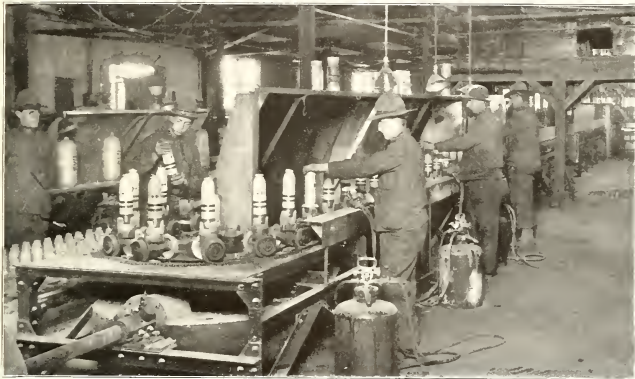
the arsenal would have produced at the rate of 8,000,000 pounds per month. The shell-filling plant had an enormous capacity which was never reached because it was impossible to get the shell. However, large quantities of gas were sent overseas, in bulk, and filled into shell for the use of our Army by both the British and the French. The amount of gas thus sent was 2,900,000 pounds of chlorine, 3,800,000 pounds of chlorpicrin, 840,000 pounds of phosgene, and 380,000 pounds of mustard gas. Much larger quantities were either on the docks or in transit when hostilities ceased; it was due very largely to this enormous reserve supply that the French during the latter part of the campaign supplied the American artillery so generously with gas shell, especially during the later phases of the operations in the Argonne.

The design of the plant was by no means Colonel Walker's most serious difficulty. Labor conditions throughout the country were very bad, and the fact that this plant was to manufacture and handle poison gas acted as a barrier to the employment of the better class of artisans. It soon became evident that the operation of the plant with civilian labor was entirely impossible, and the arsenal was authorized to employ enlisted men for this

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purpose. It is to the conscientious and loyal work of soldier-labor that the success of Edgewood Arsenal was largely due. The work required the employment of from 6,000 to 8,000 civilians, and 7,000 soldiers throughout the spring and summer. Although the number of casualties was relatively large, the effects were not serious, and throughout the entire operation, but three men lost their lives through working with toxic material.

Following the reorganization in January, 1918, the work as a whole was divided into three branches, research, development and production. The Research Section was headed as before by Mr. Burrell, assisted in defensive work by Professor Lewis, '05, and in offensive work by Lieutenant-Colonel James F. Norris, Professor of General Chemistry who was later succeeded by Professor Kohler of Harvard. The Development Section was headed by Colonel Dorsey with Captain William H. McAdams, '16, as his assistant. Inasmuch as Colonel Dorsey was for a considerable length of time sick with



PAINTING AND STRIPING THE FILLED SHELL — EDGEWOOD ARSENAL

influenza, the administration of the department fell largely upon Captain McAdams. The production work was divided into two branches, the defensive work being in charge of Colonel Dewey, and the offensive, including the production of the gases themselves, was handled as we have already seen by Colonel Walker. Dewey and Lewis continued to improve the gas mask, and as a result, at the date of the armistice, a really wonderful design had been produced, a mask which could be worn for as much as sixteen hours per day for a week without causing any serious discomfort. Indeed certain men when put to this test gained weight.

In this work they were assisted by numerous other Tech men, particularly those serving at the great gas defense manufacturing and experimental plant at Long Island City. Among these men was Norman J. Vile, '16, whose most interesting work was perhaps that of making practical tests on the model 1919 mask referred to above.

Lieutenant-Colonel Norris' work was of a different character, being the development of new and more deadly gases. Perhaps his most brilliant achievement was in connection with the discovery of Lewisite. He had reason to believe that certain chemicals if combined under proper conditions would produce something far more effective than

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any of the gases hitherto in use. With this purpose in view he drew up a series of experiments to be performed, and the work was assigned to Doctor Lewis of Northwestern University. The experiments were a complete success and resulted in the discovery of a new gas. Later on Professor Norris was sent to England to co-operate with English chemists upon gas problems, and while serving there contributed much to the science of gas warfare both in England and the United States. He was later joined by Lewis, and at the date of the armistice these two had made further investigations, which it is said would have been invaluable during the next year's campaign. Lieutenant-Colonel Norris was also a member of the committee which investigated various chemical factories in Germany in connection with work for the Armistice Commission.

After the discovery of Lewisite and other gases of a similar nature, the next step was to make preparations for production, and this work fell to the Development Section, directed as we have seen by Colonel Dorsey, who was not a Tech man, but who was assisted by Captain W. H. McAdams, '16, and by William Green, '05, who has already been mentioned. It has been said that Green was so anxious to obtain the best possible product that he allowed himself to be used for experimental purposes in determining the physiological effects of the new gas, with the result that he was ultimately obliged to spend a considerable period in hospital.

Perhaps the most interesting piece of work carried on in this section was the development of secret plants at which the new gases were manufactured. Lieutenant Charles L. Gabriel, '12, gives us some description of this work, for he says: "The work was the construction and erection of apparatus for making the new weapon of gas warfare known as Lewisite. This was absolutely a secret post, mail being censored, and no permission given to go any distance from camp up to the time of the armistice."

It is interesting to note that many of Colonel Walker's admirers state that his most important work was not that of organizing the Edgewood Arsenal, but rather the constant example which he gave the authorities in Washington of the fact that high scientific attainments and technical skill may be combined in the same individual with great ability as an administrator and organizer. It is believed by many that it was his example which made possible the organization of the Chemical Warfare Service. This service became a separate branch of the Army in July, 1918. To it were transferred practically all of the men who, as members of the Ordnance or Engineer Corps, or as civilians, had aided in developing the American gas program, and in its ranks we find many Tech men who have not previously been noted. It is to be regretted that space does not permit an account to be given of all of them. A few, however, can be mentioned as examples. Major George A. Richter, '13, was placed at the head of the Pyrotechnic Section of the new organization and was responsible for signalling and illuminating flares, and for the various incendiary bombs and shells which were available in quantities for use in the fall of 1918. Under his direction phosphorus and thermite bombs were developed to a point which permitted them to play a very appreciable part in the battle of the Argonne.

Professor Robert E. Wilson, '16, under the direction of Doctor Lewis had organized the first research laboratory devoted exclusively to war gas problems in June, 1917, at Pittsburgh, Pa., as a part of the Bureau of Mines installation. When this work was moved to Washington he was placed in charge of the investigations on soda lime and special toxic gas absorbents as well as the development of defensive measures against mustard gas and toxic smokes. To the results obtained by him were due the very active soda lime and impregnated charcoal used in the gas mask canister of the American Army. Upon the formation of the Chemical Warfare Service he was commissioned captain, and quickly was promoted to the rank of major.

Professor Ellwood B. Spear, although not commissioned, became a consulting chemist in the Research Division, working upon certain problems connected with gas defense, notably anti-dimming compounds, absorbent charcoal, and similar materials. Professor Frederick R. Kneeland also worked upon research work of the Chemical Warfare Service, handling more especially the investigation of new toxic gases. He was later appointed chemist at large of the Ordnance Department, but was unable to accomplish much before the signing of the armistice.

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Another member of the Institute Staff who had service of a very interesting nature in this connection was Major Samuel P. Mulliken. Professor Mulliken was chief of the Confidential Technical Section of the Chemical Warfare Service, being a member of the staff of Major-General William L. Sibert, Chief of the Chemical Warfare Service. His title sufficiently describes Major Mulliken's work, which included everything relative to the care and classification of records of a confidential nature dealing with technical methods of manufacture, and latest discoveries relative to gases in use by the enemy.

It will be noticed that the development of the Chemical Warfare Service was almost entirely in the hands of Technology men. Indeed to such an extent was this the case that some mild protests were made. Had the administration of the service been anything but exceptionally efficient, severe criticism would undoubtedly have come upon it from all sides. As a matter of fact instead of criticism there has been general commendation. This organization, made up as it was chiefly of men who had worked with the Medical Corps, the Bureau of Mines, or the Ordnance Department, had taken up a problem regarding which there was no available data at the start. They carried on the necessary investigation and brought the manufacture of materials through the small production state and had developed plants capable of supplying an army of 5,000,000 men or more. As we pass on we shall find many accounts of similar attempts, but not a few will end with the words, "The plant was just beginning to operate effectively when the armistice was signed." Happily this is not the case with the Chemical Warfare Service. It is true that the tremendous plans for gas warfare which were under consideration were never put in operation, but upon the other hand in all the great attacks launched by the American Army in the fall of 1918, gas troops were present with Stokes mortars, phosphorous bombs, thermite and gases, and the American artillery although using ammunition manufactured abroad, was firing gas from the Edgewood Arsenal. There is probably no feature of the entire war which was so largely a Technology enterprise, and it is one of which Technology men may well be exceedingly proud, and it will be felt by all that the Distinguished Service Medals awarded Colonel Walker and Colonel Dewey were indeed well merited.



FILLING LIVENS DRUMS WITH PHOSGENE AT EDGEWOOD ARSENAL

TECHNOLOGY'S WAR RECORD

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In January, 1918, the Ordnance Department underwent a general reorganization. A number of "Divisions" were created among which may be mentioned those of Estimates and Requirements, Engineering, Production, Supply, Inspection and Personnel. Each of these was subdivided into "Sections" dealing with Ammunition, Loading, Trench Warfare Material, Artillery and the like, which in turn were further subdivided into "Branches." The work of the whole organization was co-ordinated by a control bureau which was itself subdivided. After the armistice, further reorganization took place resulting in a new arrangement of seven divisions. Of these, four were ultimately commanded by Tech men; the Personnel Division under Colonel James L. Walsh, '07, the Gun Division under Colonel Harry B. Hunt, '97, the Tank, Tractor and Trailer Division under Lieutenant-Colonel Herbert W. Alden, '93, and the Supply Division under Colonel J. C. Heckman, '00. Something has already been said of Colonel Walsh, and more will be said of Colonel Alden and Colonel Heckman presently, but of Colonel Hunt's record we know comparatively little.

Among the various divisions under the old system, perhaps the most important work was that of the Control Bureau. Lieutenant-Colonel Sanford E. Thompson, '88, a member of the firm of Thompson & Lichtner, consulting engineers, accepted a commission as major in the Reserve Corps in December, 1917, and with the first reorganization was promoted to the rank of lieutenant-colonel and placed in charge of the Progress Section of the Control Bureau. In organizing this section he personally selected much of the personnel, including some two hundred officers and civilians. The duties of this section consisted in the co-ordination and follow-up of the work of the Procurement, Production, Inspection, and Supply Divisions, and keeping track of the demands of our forces in Europe. The principal report was compiled by the different branches, calling attention to "choke points," that is to say, conditions of delay or shortage existing anywhere in the manufacture of an article as a result of which the final product might be delayed.

George Aymar Taber, '94, was engaged in similar work, being in charge of Artillery Branch No. 2 of the Progress Section, Estimates and Requirements Division, and his special work was to keep in touch with all details connected with design, requirements, production and shipment of a number of heavy guns. Later on he took charge of the Statistical Branch, Administration Section of the Artillery Division, where he was responsible for all records of artillery manufactured during the war.

The work of Tech men in engineering and production seems to have been very largely concentrated upon material which was subsequently turned over to the Tank, Tractor and Trailer Division, but under the first arrangement it was carried on by Tank, Tractor and Trailer Sections of various other divisions. A considerable number of our men occupied positions of importance in this work, notably, Lieutenant-Colonel Aurin M. Chase, '00; Lieutenant-Colonel Herbert W. Alden, '93, who, before the war was Vice-President of the Timken-Detroit Axle Company; Lieutenant-Colonel Guy Wall, '96; and Lieutenant-Colonel George K. Hooper, '91. Chase, at the start, had charge of the Motor Equipment Section of the Engineering Division, and designed and exercised general supervision over the production of field-artillery tractors, trailers, and motor cars; also, trucks fitted with special bodies to adapt them to various uses, such as carrying munitions, carrying guns, carrying range-finding instruments, and pioneer cars. Nearly all of his designs were adopted, and cars of those types with which all Tech men who served abroad are familiar were chiefly designed by him. He also took a very prominent part in designing field-artillery and other tractors and the various types of mobile machine shops. All plans and specifications, together with the instruction of the inspectors who were to supervise the manufacture, were under Colonel Chase's direction, and it is largely due to him that toward the close of the war the American Army was better equipped in the matter of special trucks and tractors than that of any of our allies.

In June, 1918, Colonel Chase went abroad to take charge of similar work in the American Expeditionary Forces. Under his direction a staff of about eighty-five officers, composing a section, worked on matters of design of necessary emergency equipment in the field, supervised the production of equipment in France, and looked after the ordering

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of necessary supplies from the United States. They also supplied experts to give instruction in the field regarding the use of the new equipment and organized schools for the same purpose. Colonel Chase states that no particular man in the section can claim the entire credit for the work accomplished. However, as he was chief, it would seem that he is entitled to a very considerable portion of it.

Colonel Alden specialized on tank design and, after considerable work in the United States, went abroad, where he studied the question with the foremost English and American authorities and visited the Belgian front to study the problem in the field. He was chosen, together with two officers in the British Army, to design a new Anglo-American forty-ton tank, and later designed two smaller machines which were just about ready for quantity production on the date of the armistice. He also exercised general supervision of the design of military tractors, and after the reorganization in 1919, he became chief



A 240-MM. IN THE MARYLAND SECTOR

of the Tank, Tractor, and Trailer Division. His services to the Nation were considered of such importance that he received the Distinguished Service Medal, though the tanks designed by him were not produced in time actually to take part in hostilities.

Colonel Wall was engaged in work on tractor mounts for heavy guns, studying the subject abroad and serving as president for a board which investigated the general question of caterpillar mounts for heavy guns. One of the guns adapted for this mount was the French St. Chamond 240mm.-howitzer, the re-design of which was handled by Daniel M. Luehrs, '06.

Colonel Hooper's work was in the Production Division, where he was charged with getting out the material designed by Alden, Chase, Wall and their associates. Comparatively little difficulty was encountered manufacturing the special tractors and trucks including mobile ordnance machine shops, mobile field power units, and artillery tractors, but the tanks proved a much harder proposition, apparently due to difficulties very similar to those described by Lieutenant-Colonel Ragsdale in the case of hand grenades. Changes in the methods of tank warfare abroad appeared with such rapidity that the designs were

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in a constant state of alteration. Apparently at times changes were made which required other changes which were overlooked, with the result that the machines, when ready for assembling, could not be put together. It should be understood that this difficulty was due not to Colonel Hooper's organization, but to the drawings furnished by another division. In any case, in marked contrast to the rapidity with which tractors and special trucks were produced, the tank program fell so far behind as to have no influence upon the campaign. Speaking of it, Colonel Hooper says: "It may be that these matters will shortly be subject to congressional investigation at which time the facts will be brought out. The general condition of affairs may be inferred from the fact that, although work on the design of these projects began early in 1917 and some orders for production were, in fact, placed before 1918, there were no usable tanks produced previous to 1919, long after the need for them had ceased. There were, in fact, but a few dozen six-ton tanks completed just as the armistice was signed and these were so defective that no practical use could be made of them."

Another of our men who did noteworthy service in ordnance production work was Captain Andrew L. Fabens, '10. At the outbreak of war Fabens was occupying a position of responsibility with the Northern Aluminum Company, but at once resigned to accept a lieutenancy in the Ordnance Corps. Almost the first piece of work he was given was that of arranging for the production of one million aluminum canteens, cups and mess kits for delivery within three months. The only plant in the United States capable of handling this order was that with which he had just been connected, and he immediately took the matter up with his successor there, but received a reply that the production of such an amount of material in the time allowed was an absolute impossibility. Had Fabens himself not been an expert along this line of work, the matter would probably have ended there, but as matters stood the results were very different. Within twenty-four hours he had returned to the factory, arranged for the reorganization of several departments, pointed out choke points, indicated new machinery necessary, and a few days later returned to Washington to report that the entire contract would be delivered to the Government according to specifications and on time.

Large as was the quantity of material produced under contract, it should not be forgotten that the Government had many machine shops of its own in which many cannon and similar equipment were turned out. One of the most important of these was the Arsenal at Watertown, and among the Tech men working at this place was Arnold W. Heath, '08. Heath was assistant purchasing agent for the Arsenal, his duties being that of procuring building material, tools, both large and small, all kinds of factory equipment, and raw material for the manufacture of guns and carriages. At the outbreak of war this was no easy task and some very extraordinary measures were found necessary, one of which is described in the following sketch provided us by Heath: "During the winter of 1917-1918, Watertown Arsenal was confronted with the problem of obtaining fuel oil in sufficient quantity for its needs. The oil companies protested that there was a shortage of tank cars in New England, and charged a per diem rental on cars until they were returned to the loading point.

"The Arsenal found a lot of fifty standard oil-tank cars of 10,000-gallon capacity nearing completion at an Ohio factory and purchased them — instructing the manufacturer to letter them 'Watertown Arsenal, Watertown, Mass.' and to number them serially from 1 to 50. Just before the cars could be delivered, Washington advised the Arsenal that cars known to be government property or to contain war material were being side-tracked, wrecked, or otherwise waylaid to interfere as much as possible with delivery of material for war purposes and for that reason the Arsenal name should not appear on the cars. This necessitated a new coat of paint and the cars were marked 'G. P. R. X.' numbered from 3000 up. At this same time, orders were given to discontinue the cardboard placards which the Arsenal furnished to shippers to tack on car doors, advising that the car contents were intended for the Arsenal, as trouble-makers were using the information to the disadvantage of the Government.

"Two trains of twenty-five cars each were sent from the Ohio factory to the Oklahoma oil fields and the cars loaded and the trains shipped through to the Arsenal by way



WATERTOWN ARSENAL'S DISGUISED TANK CARS

of St. Louis. Each train made the run east in practically ten days, losing only one or two cars en route because of hot boxes."

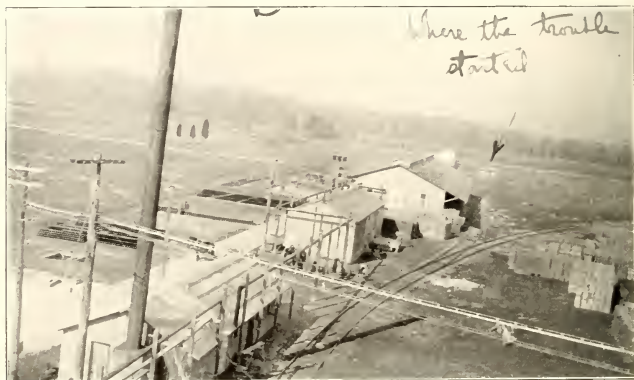
Another rather interesting piece of work performed by one of our men was a process developed by Major Nathaniel C. Walpole, '98, at Watervliet Arsenal. He first won notice by the rapidity with which he succeeded in locating various types of machine tools needed by the government shops, and was detailed at Watervliet to organize and train the personnel, both enlisted and commissioned, which were to operate the base ordnance depot for relining cannon in France. He trained no less than four ordnance battalions for this work, but he appears to have become more or less indispensable to the Arsenal and as a result found great difficulty in getting overseas himself. While awaiting the opportunity he was given charge of the new liner shop which was making finished liners to be sent abroad, and while there he developed a new and greatly improved method of relining light guns. Speaking of it he says: "With the seventy-five field piece by the existing process, we could hardly get a hundred shots. It was to overcome this difficulty that I conceived of the new idea in relining cannon, which has proved very successful. This process was electrically welding liners in place both at the muzzle and breech end. The first gun lined by this process was No. 6, 1916 Model, American 75. The life of the barrel of one of these guns is about six to seven thousand rounds. This gun, after relining, has fired over nine thousand rounds."

When arrangements had been made to produce material, its further supervision rested with the Inspection Division. Lieutenant-Colonel Orten W. Albee, '93, was engaged in this work, and perhaps occupied the most responsible position of any Tech man in the Ordnance Department. Albee's record is also an example of most sincere patriotism. During his younger days he had been connected with the Ordnance Department as inspector at the plant of the Midvale Steel Company. Later as superintendent of the Ordnance Department of the Benjamin Atha Illington Company he had manufactured guns for the Navy during the Spanish War. For the ten years previous to the war he had been in private practice as a consulting engineer in Detroit, and had prospered.

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Early in 1917 he felt it his duty to return to government service, and accordingly closed up his business and accepted a commission as major, in the Ordnance Reserve Corps. He was assigned to work in the Inspection Division as a traveling supervisor, going from plant to plant in the United States and Canada, assembling and instructing the inspection forces at each point. In March, 1918, he was appointed Inspection Manager of the Toronto District, which included the entire Dominion of Canada. He was given entire charge of the procurement of material for, and production of, and inspection of every type of product, including shells, ranging from three to twelve-inch, all kinds of fuses, rough forgings, and even ingots produced by more than three hundred munition plants. In October he was promoted to lieutenant-colonel.

The United States has no diplomatic representative at the Canadian capital, yet during the war an immense amount of correspondence of a semi-diplomatic nature was



THE "FIRING FRONT" AT ABERDEEN PROVING GROUNDS, WHERE THE BIG EXPLOSION STARTED

necessary in arranging various details for the co-operation of the two countries in carrying out the common object, and Colonel Albee became the representative of his nation in these negotiations. After the armistice, when it was necessary to adjust claims and provide for the cancelling or completion of contracts, the matter became even more important. He was then appointed chief of the Toronto District as well as salvage officer of the district, and contract assessor for Canada. His work from that time on was one requiring the greatest conscientiousness, skill and judgment, and was performed in a wholly creditable manner.

He had started work in Canada as an inspector, and with no actual command. At the date of his death, on August 4, 1919, he commanded a staff of fifty officers and twenty-four hundred men and had handled contracts amounting to no less than \$400,000,000.

Lieutenant-Colonel Arthur S. Douglass, '08, was engaged in work of a remarkably similar nature, first in a civilian capacity as a consulting engineer for the British War Mission, and later as a supervising inspector. Like Albee he became an inspection manager and finally chief of the Boston Ordnance District where, at the signing of the armistice,

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he adjusted some \$100,000,000 worth of contracts, representing the current business of his office.

Several other men held positions of importance in the inspecting staff of the Ordnance Department, but only one or two can be mentioned here. Major Charles S. Cole, '03, had supervision at the United States Cartridge Company's works at Lowell. This plant produced approximately thirty-six per cent of all small arms ammunition delivered to the United States Government during the war, that is to say, about nine hundred million rounds.

Another man who did interesting work along this line was Captain John A. Root, '06, who served as assistant to the inspector of ordnance at the Peters Cartridge Company, and later became himself inspector at the Old Hickory Powder Plant at Nashville. This was the largest smokeless powder plant in the world, and had it been completed before the armistice, Captain Root would have had one of the biggest jobs in the country on his



THE "FIRING FRONT" AFTER THE EXPLOSION.

hands. As it was, after about half the plant was in operation, the armistice put a stop to further activities.

Another very important branch of inspection was the final acceptance tests on propellants and explosives, performed in part at the factories and in part at government proving grounds. Captain Charles S. Reed, '16, was assigned to such work, and among other duties had charge of the tests on powder for the fourteen and sixteen-inch guns. These tests were carried on, not at the proving grounds, but at Panama, since sixteen-inch guns were not available elsewhere. It should be mentioned that the inspection and testing of explosives is by no means uneventful or safe. Many newspapers have apparently labored under the impression that an officer of the Ordnance Department had nothing to do but sit in comfort in a large revolving desk chair, but there were other sides to the work. Thus, Lieutenant B. P. Lyons, '15, who by the way was working as assistant to Captain A. G. Hawes, '98, had the misfortune to have a grenade explode in his hand. By far the most interesting experiences in the way of accidents, however, fell to Lieutenant Alvin G. Thompson, '12, and some of his associates.

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Thompson started as a private but was later commissioned and was assigned to work in testing trench artillery ammunition at the Aberdeen Proving Grounds, working in co-operation with Lieutenant C. E. Dodge, '12, Lieutenant A. E. B. Hall, '14, Lieutenant William H. Tapley, and Lieutenant C. P. Fiske, '14. What occurred can best be judged by Thompson's own account. "It was frequently necessary to disregard 'safety first' methods to get things done in a hurry. On this particular occasion 240-mm. shell were being filled with T. N. T., melted in an improvised boiler and poured by hand. It is not known definitely just what started the affair, but the small house where the boiler was located caught fire and thus detonated eight or ten 240-mm. shell standing just outside. An extremely high wind was blowing at the time and this was no doubt responsible more than any other factor to the destruction which followed.

"The burning embers from the shed were scattered by the blast and one of the powder magazines containing about 500 pounds of loose T. N. T. which stood about twenty-five feet away caught fire, the explosive burning fiercely with a heavy black smoke. Soon afterwards a second magazine filled with black powder went up, and 700 loaded 240-mm. shell containing each ninety pounds of T. N. T., which were piled between this magazine and the storehouse went off with one grand crash. The air for a radius of half a mile was filled with 75-mm. shell, three-inch trench mortar bombs and eight-inch Livens barrels. One piece of shell went through the roof of the proof department office one mile away and split a chair into two pieces. All the windows within a mile radius were blown out, sash and all.

"The next place to go was the storehouse, the latter being filled with about 15,000 three-inch loaded shell and 25,000 rifle and hand grenades. Just outside the storehouse 15,000 more three-inch shell were stacked up, and for about an hour the shell, together with the grenades, kept up a constant din which sounded like a super-machine gun. Every once in a while, a 240-mm. shell would be tossed up about 100 feet, and go off with a roar.

"The constant temperature magazine went up next with one grand puff of black smoke; power house, office and observing tower were soon blazing.

"Fortunately, only a few men were injured by the explosion, these being carpenters who were working on a house about three hundred yards away from the storehouse. The whole side of this house was blown in, some of the shells going clear through the house. The explosion had at least one good point, it got rid of a lot of rejected material that would have had to be destroyed sometime."

Once the material had been accepted, it was turned over to the Supply Division which was responsible for delivering it as needed to the troops. Lieutenant-Colonel G. R. Norton, '07, was for some time assistant chief of this division and was charged with the work of shipping. His staff at Washington consisted of some seventy-five officers and five hundred civilians. Later he was sent to France to handle work of a similar nature and was cited by the Commander in Chief for meritorious and conspicuous service. Colonel J. C. Heckman, '00, also assisted in organizing the Supply Division. Heckman had entered the service shortly after the outbreak of the war, becoming a major in the Ordnance Corps, and he subsequently was promoted to the rank of lieutenant-colonel. His special work was that of selecting sites for and supervising the design and construction of five large and several smaller ordnance depots for the purpose of handling explosives, the whole project involving an expenditure of some fifty million dollars. He later became head of the Construction and Operating Section and directed the organization and operation of some thirty-five depots handling supplies of all kinds, and still later spent some three months in Europe, studying ordnance supply systems of the American, English and French Armies. Upon his return to the United States he was appointed chief of the Supply Division, with the rank of colonel. After the armistice he took part in reorganizing the Ordnance Department and placing it upon its present basis, occupying the position of chief of Field Service in the new organization. Lieutenant-Colonel Henry L. Rice, '93, was also engaged in supply work and saw some service abroad. His most important duty appears to have been supervising the remarking of all American ammunition.

The men heretofore mentioned have been, for the most part, those who were chiefs of Divisions or Sections. Altogether 269 Tech men were enlisted or commissioned in the Ordnance Corps, while others were closely associated with it as civilian consultants.

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Mention has already been made of Professor Mueller. Another member of the faculty who was active in research work, though, like Professor Mueller, acting in a civil capacity, was Professor Miles S. Sherrill, '99, who says: "The most interesting problem, and the one which took my greatest effort, was an investigation of a catalytic process for producing picric acid directly from benzene. This process was carried out on a semi-plant scale, under my charge, at the Nixon Nitration Works, an isolated spot between Perth Amboy and New Brunswick, N. J.

"The plant was capable of producing about a hundred pounds of picric acid per run.

"The essential feature of this process was the direct oxidation and nitration of benzene in a single stage to form picric acid. In the standard process phenol is first made from benzene and subsequently nitrated."

The results obtained were most valuable and, had the armistice not intervened, might have resulted in considerable changes in accepted processes for producing explosives. The work was not entirely without incident either, for, to use his own phrase, he witnessed the tremendous explosion that wrecked the Gillespie Loading Company at "close range."

There is of course one rather sad phase of the work of the Ordnance Corps, for, as is but too well known, many of the projects which they attempted were not completed in time to influence the result of the campaign. The chief reason for this, however, was not incompetence as many persons suppose, but the result of an agreement with our allies by which, for the first year, they were to furnish equipment immediately required except propellants and explosives, while the United States prepared for quantity production on a monstrous scale, a scale which would have been futile until increased ocean tonnage made it possible to transport the products. The preparations were made, the first models of the new equipment were produced, and in most cases production in quantity and of satisfactory quality had begun at the date of the armistice.

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The shortage existing in ordnance material in the United States was no greater than that in aircraft, and the development of an airplane program was from the start one of the most severe problems with which the Government was faced. During the twelve months preceding the outbreak of war the total production of the airplane factories in the United States had been less than eight hundred machines, yet our people believed that they could produce these machines in immense quantity and undertook to furnish twenty-two thousand planes for use at the battle front, which, allowing for spare parts and replacements, could not amount to less than forty thousand complete machines actually built. It was proposed to accomplish this work by quantity production. It would appear that those responsible for this scheme had very little idea of the essentials of quantity production or of the conditions of warfare on the Western Front, for to produce any machine in quantity, stabilized design is absolutely essential, whereas during the entire war the design of the machines on the Western Front underwent constant change, superiority in the air resting first with one side and then with the other as each new model was produced.

It is interesting in this connection to note that when the scheme was first suggested the technical experts of the Signal Corps planned not upon the production of forty thousand, but upon a maximum of thirty-seven hundred.

Regarding the technical staff of the Signal Corps at this date, Benedict Crowell, Assistant Secretary of War, and Director of Munitions, says: "The American Air Service, which was then part of the Signal Corps, had had a struggling and meager existence, working with the old pusher type of planes until in 1914 an appropriation of \$250,000 was made available for the purchase of new airplanes and equipment. Shortly after this appropriation was granted, five officers were sent to the Massachusetts Institute of Technology for a course in aeronautics. When the war broke out in Europe in August, 1914, these men constituted the entire technically trained personnel of the Air Service of the United States."

Among the officers who had taken this course were Lieutenant-Colonel V. E. Clark, '15, and Colonel Edgar S. Gorrell, '17. At the outbreak of war Clark was on duty in the

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(U. S. Official)

THE FIRST SQUADRON OF AMERICAN-BUILT PLANES TO CROSS THE GERMAN LINES

office of the Chief Signal Officer at Washington, acting as chief aeronautical engineer of the United States Army. Gorrell was ordered to the same office shortly after the declaration of hostilities.

Early in June the immense program of aircraft production started and, as might have been expected, difficulties were encountered very quickly. None of the commercial planes at that time being built in the United States were suitable for purposes of combat; none of the excellent combat planes abroad were suitable for quantity production with American machine tools. Nevertheless, a sincere attempt was made to utilize them, and the agents of the various foreign machines brought their models to McCook Field, the aeronautical experimental and engineering station, where, under Colonel Clark's supervision, they were tested out.

It will be recollected that Major George R. Wadsworth, '98, was also engaged in similar work for the Navy (see page 251).

It soon became evident that if any one of the foreign machines was accepted, by the time the United States was ready for quantity production the machine adopted would be obsolete. It also developed that there were not enough skilled workmen in the United States to build the necessary engines and other parts.

Accordingly, in June a mission was sent abroad to study conditions. This mission was known as the Bolling Mission. Clark was naturally a member of this mission together with Colonel Gorrell (see page 208), and spent the rest of the summer in studying machines and tactics in use in the French, British and Italian fronts. By July the mission had begun to select types of machines, endeavoring so far as possible to choose types which seemed to be those of the future rather than those of the past.

It was still found, however, that in order to produce these planes in American factories and make them suitable for American armament and engines, it would be necessary practically to re-design the entire machine. By the time the first De Haviland planes were in service they were already out of date as combat machines, although with the experience gained in building them a new De Haviland was designed — the De Haviland 9-A, which would probably have proved much better.

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In September, 1918, the Air Service was reorganized and Clark was made chief of the Airplane Design and Technical Division. Shortly after his appointment, a number of machines of entirely American origin and especially suited to American manufacture, began to appear, such as the Lepere, the Loening, the Thomas-Morse, the Glenn-Martin, and others. With the experience gained, rapid progress was made toward quantity production, and had the war continued the United States would probably have had an abundance of very excellent machines of purely American design.

Several other Tech men were engaged in work connected with the Air Service, notably Major Henry Souther, '87, who subsequently died in the service, and Major George L. Norris, '87. Shortly after the outbreak of war Souther was commissioned a major and was appointed assistant chief of the Aviation Section of the Signal Corps. He was closely associated throughout with Clark and worked with him upon various problems. His most important work, however, was in connection with aviation intelligence and with the design and selection of motor vehicles of all types for the Aviation Section, a work for which his previous experience as an automobile engineer had well fitted him.

In July, Souther interested his classmate Norris, and the latter became chief metallurgist of the Aviation Section. During the next four months he was engaged in the preparation of specifications and in investigations having to do with specifications of new materials. During this time he was a member of the International Aircraft Standards Board. Perhaps this most important work during this time was in connection with the re-design of a Liberty motor. It will be recollected that this engine had originally been designed with the advice of the best foreign experts as an 8-cylinder, 225-horsepower. Nevertheless, within ninety days it had become necessary to increase it to 12-cylinder, 330-horsepower, and finally to alter the design to deliver 400-horsepower, a change which not only required alterations in the dimensions of the engine but also, in certain cases, necessitated a change in the quality of the material as well.

In December Norris was commissioned a captain in the Signal Officers' Reserve Corps and later he became a major in the Air Service. In January, 1918, he was detailed as district manager of production in the Pittsburgh District for the Avia-



(Underwood & Underwood)

TRAINING PLANES FLYING IN FORMATION

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tion Section, which later became the Pittsburgh District of the Bureau of Aircraft Production.

He remained in general supervision of all metallurgical work of the Air Service and the general laboratories of the service, which were located at Pittsburgh were under his charge. The inspection and production of Le Rhone aircraft engine came under his jurisdiction.

Frank W. Caldwell, '12, seems also to have done important work in connection with propellers, being charged with the design and drafting of specifications of all propellers used by the Army and many of those used by the Navy during the war. He built and supervised the propeller-testing plants aggregating over two thousand horsepower, and introduced many ingenious improvements.

There were numerous other Tech men serving in the Army associated with this work, but the work of those mentioned here would seem to be sufficiently typical of the whole. In every case it is the story of an attempt to standardize design and produce in quantity a machine for which the specifications were being changed from month to month, or even from week to week, by the development of new tactics or new machines abroad. Had the United States at the start of the war had a fairly large supply of planes of any one standard type and had those planes been steadily re-designed to suit American manufacture and European conditions, it would still have been difficult to have carried out the program demanded by a public with little knowledge of the basic principles of engineering or of military requirements. As it was, to attain the program set was an utter impossibility.

Despite the conditions, however, it will be noted that a degree of success was attained, for quantity production of engines was finally started in June, 1918, reaching a production of 3878 for October, an abundant supply of training planes was provided, and a very considerable number of De Haviland 4's were actually sent to France, the production having amounted in October, 1918, to over one thousand.

Work in connection with the air has a peculiar interest to the Institute, for practically all design of military planes was checked by work in our air tunnel and aerodynamical laboratory. On November 1, 1917, the United States Government concluded a contract with the Institute by which the tunnel was leased by the former, and so valuable has been the work accomplished that the Government has retained control.

One of the most interesting pieces of work done in the wind tunnel during the war was that performed by C. B. Hanscom, '18, in a long and careful investigation having for its object the reduction of experimental errors in tunnels of this type. Mr. Hanscom also did some interesting work in research on wing design, with special regard to high-altitude flight, which has probably contributed to the present superiority of American machines in high-altitude work.

Mr. George M. Denkinger, '13, the present instructor in aeronautical engineering, was appointed under the Civil Service as a civilian aeronautical engineer with the Air Service. He was detailed to work in the Institute's aerodynamical laboratory, his work consisting chiefly of testing model machines and component parts, with special reference to stability and the prediction of performance of the full-scale machine from model tests. To carry this work out he was detailed at McCook Field, Dayton, Ohio, at irregular intervals to observe machines in flight and to gain data regarding them, as compared with that gathered in the laboratory.

Another phase of the Air Service work in this country was that of training pilots to handle the machines and of organizing squadrons to be sent overseas. The orders were to organize squadrons and send them across; the one demand was haste, and under such conditions it was no easy task to turn out efficient organizations. Among those of our graduates who were engaged in this work was Lester D. Gardner, '98, of whom we have already heard in connection with the preparedness campaign before the war. Just before the outbreak of hostilities Gardner applied for and received a commission in the Aviation Section. He was rapidly promoted to first lieutenant, captain and finally major. During most of his period of service Gardner was stationed at Kelly Field, Texas, and while there organized no fewer than eighty-three aero-squadrons. Later he was transferred to Waco, Texas,

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where he commanded an aviation camp of some twenty-seven hundred men. Lieutenant H. Kenneth Franzheim, '13, had charge of training bombardment pilots at Ellington Field, Texas, and succeeded in developing an excellent course.

The pilots themselves, while doomed to a life of more or less monotony, going through a regular series of exercises day after day at the various flying fields, were in almost as great danger as their brethren at the front line. Their machines were of comparatively low power and of antiquated type, and during the early days of the war the mechanics charged with the repairs were not of the best quality. Cadet Pilot Lewis P. Sanborn, '17, writes: "I regret to say that I accomplished nothing while in the service except the expenditure of considerable government money, when, within five days of receiving my commission as pilot, my ship slipped into the inevitable tail spin and for the usual inexplicable reason I was unable to get it out. The ship, which was a beautiful bird was a total wreck, while I, who was not much of a bird, escaped with a broken nose and a few scratches. Two weeks in the hospital fixed me for further experiment, but my next flight proved my nerves to be slightly upset, and four months elapsed before they became 'as they were.' By this time the Chemical Warfare Service, with the aid of the American Chemical Society, from which I promptly resigned, discovered my whereabouts and succeeded in having me transferred for temporary duty with the fountain pen army in Washington, D. C. Before the necessary red tape could be untangled, the Kaiser quit his job, so I also received my discharge and came home, none the worse for wear."

Not all of our men escaped as luckily as did Sanborn. Among the names upon the Roll of Honor will be found no less than ten who died directly through accidents while training, among them Lieutenant Walter F. Buck, '12, who lost his life through the act of a spy, probably a mechanic in his own hangar.

Another phase of aircraft work was that involving balloon production. One of our men, Lieutenaut Edward Schoeppe, '15, served as assistant chief of the Balloon Production Branch of the Air Service and had charge of the design and production of gas cylinders and generators and of the procurement and production of hydrogen gas. Later he served as chief of the Balloon Inspection Branch.



THE OFFICE AT ABERDEEN PROVING GROUNDS, BEFORE THE EXPLOSION DESCRIBED BY ALVIN G. THOMPSON, '12



THE OFFICE AT ABERDEEN PROVING GROUNDS, AFTER THE EXPLOSION DESCRIBED BY ALVIN G. THOMPSON, '12

While our men in the Air Service were busy organizing and training squadrons and developing equipment, others in the Corps of Engineers and the Coast Artillery Corps were working on anti-aircraft devices. One of the most noteworthy pieces of work in this line was that performed by Major Alexander Macomber, '07. He had entered one of the first officers' training camps, but when his experience in connection with electrical work was discovered, he was transferred to Washington to develop searchlights for field warfare. At this time the American Army had no searchlight units, except a few rather experimental affairs. Major Macomber, therefore, had to build from the ground up, being obliged to write out the tables of organization and tables of equipment, and in many cases to design material and follow it up. He saw that equipment was delivered and also assembled the necessary personnel by draft, requisition, or voluntary enlistment, organized it into companies, and sent them one at a time overseas. These units served with the French and British Armies, remaining with them until they were consolidated, with the formation of the American First Army, with which they saw service in both the St. Mihiel and Meuse-Argonne drives. Macomber himself went over in June, 1918, and commanded some of his units during the operations just mentioned. So satisfactory was their work that they received a citation from the Chief of Engineers of the American Expeditionary Forces.

C. G. Abbot, '94, was also engaged as a civilian in improving our searchlights and is responsible for many of the features of the very light, cheap and efficient unit with which our men began to be equipped in October, 1918.

Some work of a rather unique character was performed by Francois E. Matthes, '95, of the United States Geological Survey. At the outbreak of war the United States Army possessed many officers with experience in indirect fire, both on land and at sea, but all had been trained to work from accurate charts and maps which, as subsequently developed, were not always available abroad. It had been found necessary by the French to have an especially trained corps of officers, known as "orientation officers," to re-survey and check up maps of the fields of battle, and a similar corps was found necessary by the United States Army. As it was impossible to train men in such work at short notice, the corps was selected chiefly from the personnel of the Geologic Survey. As a text-book

QUARTERMASTER CORPS

for training these men, Matthes translated the French "Manual for the Orientation Officer." The value of the translation was quickly recognized by the War College which ordered a large edition.

QUARTERMASTER CORPS

The Quartermaster Department provided food, clothing and equipage. Previously it also handled the construction of barracks and depots, but shortly after the outbreak of war a new organization, the Construction Division was authorized for the express purpose of caring for the immense program adopted. A great number of Tech men served in this division, many of whom were commissioned, but since it is next to impossible to separate their work from that of civilians the whole story is given in the chapter dealing with civilians in government service. (See page 315.)

It is also found that most of our men engaged in handling subsistence and equipage were civilians and their work is described in the same chapter. (See page 324.)

There are, however, one or two who should be mentioned here. One of these is Captain Gardner Alden, '13. Alden, previous to the war had been a chemist with the United States Rubber Company and was especially commissioned to organize the rubber-boot repair shops of the Salvage Depots in France, but through some mischance was instead sent to Washington, and thence to the Base Salvage Depot at Atlanta where he became adjutant and later commandant. During Alden's tour of duty, over five hundred thousand articles of clothing and equipage were turned back to the Army, and this, at a time when to have obtained the same material by manufacture was impossible.

E. Southworth Church, '08, though commissioned as a captain in the Motor Transport Corps, worked on a quartermaster problem and has the honor of developing the present standard army rolling kitchen.

SANITARY CORPS

The Quartermaster Corps was also responsible for the supply and inspection of food. In this work it was assisted by the Nutrition Section of the Sanitary Corps, which acted



(U. S. Official)

SCENE IN THE SALVAGE DEPOT AT TOURS, WHICH WAS ORGANIZED UNDER HARRY L. ROGERS, '89

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under the direction of the Surgeon-General and which was in turn aided by food laboratories throughout the United States. Some of the most important work carried on at this time was that conducted by Major Samuel C. Prescott, '94, who says: "On being detailed to the Surgeon-General's Office in the Division of Food and Nutrition, I was assigned to three distinct duties; (1) investigation work, (2) instruction of nutrition office and inspectors, (3) inspection service. The investigation work had to do with food materials and new food compounds which had been brought into the Surgeon-General's Office with reference to their availability for the army ration. Later the whole subject of dehydration of food was referred to me. This work kept a number of officers and enlisted men busy; part of the investigation was also done in the laboratories of the Institute. In October, 1918, the investigation of dehydration was taken over by the Department of Agriculture and on special request of the Secretary of Agriculture I was detailed to serve as chief of this division of dehydration until discharged from the service. Work was carried out under my general direction at Technology, University of Rochester, Johns Hopkins University, Bureau of Chemistry laboratories at Washington and in a number of plants throughout the country.

"The work of instruction was largely confined to the officers who were assigned to the various training camps and to overseas service as nutrition officers. (See page 28.) To these men a course of lectures was given dealing with inspection of food, proper conditions of storage, and spoilage and waste as well as some instruction in the organisms causing the deterioration of food materials. In addition to instructing these men, I spent a short time at the Medical Officers' Training Camp at Camp Greenleaf, Ga., where I lectured on food conservation and inspection to all the medical, veterinary and sanitary officers in the camp, which at that time numbered seven thousand.

"Because of experience which I had had with food manufacture and examination, the inspection of the conditions of storage of quartermaster subsistence supplies was placed in my charge. Several visits were made to each of the larger camps east of the Mississippi and recommendations were made as to improvements of conditions of storage and transportation. Because of the close relation of this work to that of the Quartermaster Department, I was made liaison officer between the Food Division and the Division of Purchase and Supply of the Quartermaster Department.

"As a result of the work of the Dehydration Division and its recommendations, about forty thousand tons of dehydrated vegetables were sent to France for the use of the American Expeditionary Forces. The specifications for these foods were first written by me and later, practically without modification, were accepted by the Division of Purchase and Supply of the Quartermaster Department."

This problem was a most important one from the point of view of supplying the troops abroad for which tonnage, as is well known, was very scarce and the saving made by dehydrating the food supplies was tremendous. The work was carried out in laboratories throughout the United States, some of the most interesting work being that done at the Institute by Doctor Robert P. Bigelow, assisted by J. M. Strang, '19. It may be interesting to note at this point that Doctor Bigelow's activities were not confined to the dehydration problem, but that he also devised a means for obtaining very fine threads of rubber which were used in connection with very important and remarkable apparatus, of which at the present date it is impossible to say more.

A very different type of work was assigned to Major Michael W. Murray, '08, whose peculiar mission was that of finding work for "limited service men" and in making preparations for the vocational rehabilitation of disabled soldiers. The work was closely connected with that of Major Arthur D. Dean, '95, who was charged with the physical reconstruction of the wounded, especially that which was effected by orthopedic shoes, psychotherapy, education and vocational work with the blinded soldiers, instruction in lip reading for the deaf and special work for the shell-shocked and others suffering from various defects.

THE DEVELOPMENT OF NEW WEAPONS

One of the most interesting phases of military activity both in the United States and abroad was research for the purpose of developing new weapons. Throughout the

THE DEVELOPMENT OF NEW WEAPONS

period of hostilities the war was to some extent a struggle between inventors and scientists of the opposing nations to devise new means of offense and defense, and upon several occasions new inventions, when they appeared unexpectedly in the theatre of operations well-nigh proved decisive. In no phase of the war was this struggle between inventors and scientists better illustrated than in the contest between those engaged in increasing the efficiency of the submarine and its torpedoes, and those engaged in the development of anti-submarine devices. The Allies were naturally more especially interested in the latter phase of the problem, and a number of Tech men were actively engaged upon it, both as civilians and as members of the allied armies or navies.

Perhaps the most successful among these was W. W. Jacques, '76. Jacques served as an expert for the anti-submarine division of the British Admiralty throughout the war. He originated and developed a submarine detector which must have been one of the first, if not the first, practical instrument of its kind. The device proved so effective that Jacques has since received a formal letter of thanks from the Admiralty and many informal notes of appreciation from British naval officers and scientists.

When the United States entered the war it was faced with the necessity of developing submarine detectors. The problem was one of the first submitted to the National Research Council for solution and before long, laboratories, scientists, and inventors throughout the United States were engaged. The work was organized in a peculiar manner. To insure secrecy, each man or group of men worked independently, reporting from time to time to an officer of the Navy who had general supervision of the whole problem. When a comparison of these reports indicated the advisability of bringing two or more investigators together, an interview was arranged. Except when such an interview took place the various workers seldom saw each other, and to this day the majority are unaware of the part played by others. As a result, many men and groups of men perfected similar devices, and it is impossible to state definitely where the credit for any particular movement really belongs.

The chief experimental station of the Navy was the submarine base at New London. One of the first scientists to arrive was Professor Max Mason, of the University of Wisconsin, who some years ago was a member of the Mathematics Department of the Institute. Professor Mason had foreseen the submarine crisis and since 1916 he had been perfecting a device which might be used to detect U-boats, his experiments being performed in the waters of Lake Michigan. During the first few months he was practically the only man at the station who really had any practical experience, and the first devices which were brought out were largely, if not entirely, of his design. Later on he developed a device known as the MP-tube, which proved somewhat difficult to operate but which had the greatest range of any instrument designed during the war. American submarine chasers were equipped with some of his devices, which were a great improvement on those in use abroad at the time. There seems, however, to be some question as to whether these instruments were ever actually used in combat with a submarine.

Later on Professor Pierce, of Harvard University, took charge and the organization was enlarged to include not only experiments at New London but also research in civilian laboratories at a distance, notably those of Kalmus, Comstock and Wescott of Boston and the Submarine Signal Company. In both of these laboratories Tech men were prominent. Doctor H. T. Kalmus, '04, and Doctor Daniel F. Comstock, '04, will both be remembered as having at one time been members of the staff of the Department of Physics, while a number of other Tech men assisted them. Among the latter may be mentioned Leonard T. Troland, '12, J. A. Ball, '15, E. A. Weaver, '15, E. A. Gallison, '08, and A. G. Smith, '19. Doctor Kalmus had comparatively little to do with submarine-detection work as he was busy in developing a process for producing abrasives and refractory material, and in supervising the construction of plants in the United States and Canada to furnish these essentials. The submarine work was directly in charge of Doctor Comstock. Troland appears to have acted as a liaison agent between the laboratory and the New London station. His work included practical tests on vessels at New London and the development of the instruments at the laboratories at Boston.

James K. Clark, '99, was engaged in the same work, serving on board Sub-Chaser

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259, which made various cruises, to test out various devices, using the port of Boston as headquarters.

The particular work which Kalmus and Comstock undertook was that of eliminating the noises originating on the ship which carried the listening device. The earlier instruments required that the ship should be brought to a standstill and complete silence maintained on board, while listening to a submarine. The submarine, by going carefully and slowly, could frequently escape. The new device, when perfected, however, enabled the operator to listen with the ship driving at full speed, a result obtained by balancing out the ship's vibration by means of an electric compensator. In the laboratories of the Submarine Signal Company G. R. Stevens, '17, worked upon the same problem, having been assigned to this duty by the United States Signal Corps, of which he was a member. He helped to equip the first submarine chaser to go across with oscillators, tension-tuned microphones,



BATTLESHIPS SHELLING DURAZZO FROM LONG RANGE, THE FIRE BEING DIRECTED BY WIRELESS TELEPHONE FROM SUBMARINE-CHASERS AND AIRPLANES

C-tubes, V-tubes and MV-tubes. It would appear from the statements of Admiral Sims and others that the C-tubes were actually used in action and gave an excellent account of themselves.

Practically all of the devices developed at New London were based on acoustic detection of submarine while in motion. If the submarine remained quiet upon the bottom there was no way of discovering its position.

Two other Tech men, Doctor F. H. Williams of the Corporation and Elof Benson, curator of instruments in the Department of Physics, undertook work upon a device for locating the submarine while lying quiet. They attacked the problem somewhat late in the game, and as a result their devices were never put into actual service. The results obtained, however, showed that such a device could be developed and that the submarine would have a negligible chance of escaping a ship so equipped.

A portion of the research staff of the General Electric Company, both at Lynn and Schenectady, was also working on submarine detectors. In particular, Doctor Elihu Thomson of the Corporation and Lawrence H. Allen, '20, studied this problem. Doctor

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Thomson's work consisted chiefly of exercising general supervision of work at the Lynn laboratory; Allen who was a member of the Naval Reserve Force, worked up the details. Doctor Thomson and Allen together did considerable work in co-operation with Benson and Doctor Williams of Nahant, and also in development of the C-tube. Their particular contribution was the arrangement of the delicate apparatus so as to prevent injury and to permit manufacture in quantity.

Another of our men who was a member of the General Electric staff and who worked upon this problem was Doctor W. R. Whitney, '90, who directed the work of the laboratory at Schenectady upon the same problem, being aided by W. D. Coolidge, '96, who is the assistant director of the laboratory.

Work was also carried on in the laboratory of the Western Electric Company, and here Captain Reginald L. Jones, '09, was engaged. We have no account of the details of



THE ITALIAN SEAPLANE WHICH BOMBED DURAZZO AND DIRECTED THE FIRE OF THE ALLIED SHIPS BY WIRELESS TELEPHONE

his work but as it was associated with mechanism for the detection of airplanes and of hostile mining operations, it appears probable that it dealt with microphones.

The microphone also played a prominent part in sound ranging, and in this work also a number of our men were engaged. Lieutenant Joyce R. Kelly, '17, reports that he worked at the Palmer Laboratory at Princeton in developing American apparatus, while Lieutenant Merrill J. Smith, '13, and Master Engineer Allen D. Pettee, '16, were engaged in the same service abroad. The American apparatus was closely modeled after a successful British device, but improvements were introduced, and toward the close of hostilities an entirely new machine was sent to the front, which proved very successful.

Sound ranging is accomplished by obtaining a record of the concussion of a gun by means of microphones placed at several different points. The difference in the time at which the detonation is recorded fixes the position of the battery within less than fifty yards. Every improvement aimed at greater accuracy and the elimination of sound which did not aid in locating the hostile guns. Pettee was among those who conducted the field tests and reconstruction of the first practical American-built sound-ranging apparatus to

TECHNOLOGY'S WAR RECORD

reach France. The apparatus, after rebuilding, proved satisfactory, and Pettee was ordered to Paris to reconstruct a number of other sets at the factory of Le Matériel Téléphonique, a branch of the Western Electric Company.

Sound-ranging work at the front was in the hands of the 29th Engineers, and a number of our men served in this regiment. In order to get accurate data the sound-ranging microphones were always placed as near the front line as possible and in positions which enabled the records to be checked by direct observation. As a result, those in charge of the sound ranging at the front saw service of a most active type, and a number of them were injured. Among these was Smith, who took part in the fighting at Seicheprey, Château-Thierry, St. Mihiel and the early part of the Argonne, being finally severely wounded and gassed during the night of October 2.

Another type of sound ranging was that involved in locating the position of hostile airplanes. In order to permit searchlights to be thrown upon them it is necessary to locate the direction of the plane. Perhaps the most satisfactory device developed was a parabolic surface containing a microphone at the focus. Lieutenant Winfred W. Smith, '17, assisted in the development of this device. Upon his arrival in France, in May, 1918, he was immediately assigned to the Division of Research and Inspection and stationed at Paris. He was shortly afterwards sent to the front to make actual tests on the instrument. He reports that the results were most satisfactory, as it was possible in most cases to point the searchlight directly at the plane at the first attempt.

Another field of research during the war was that dealing with wireless telegraphy and telephony. Most of this work in the United States was carried on at the radio laboratories of the Signal Corps at Camp Vail, New Jersey, although as usual private laboratories throughout the United States co-operated. Sergeant Leo B. Miller, '15, working with R. S. Burnap, '16, were in charge of the calibration and standardization of all the equipment and instruments used in connection with this research work. In addition to this, they did a considerable amount of experimentation upon radio apparatus for the army and upon various component parts. Sergeant J. Van H. Whipple, '21, who had previously been engaged as a structural engineer on the government nitrate plants at Muscle Shoals, worked in the radio laboratories on the adaptation of the various models to the standards required for quantity production.

Oddly enough, one of the most difficult problems in radio work in connection with airplanes was not electrical but acoustic. The airplane could generally signal to the ground but the roar of the engine was such as to make it practically impossible for the observer to receive. John P. Minton, '12, was placed in charge of this problem at the laboratories of the Western Electric Company. After many disappointments, he finally succeeded in developing a sound-proof helmet by means of which it was possible for the pilot to hear nothing except what came through the telephone receivers. This improvement is of great importance as it enables the pilot not only to receive radio telegraph messages from the ground but also permits him to communicate with pilots from other planes. So satisfactory has the device proved that there has been serious discussion of allowing artillery battery commanders to take their position habitually in airplanes and conduct the fire of their batteries by radio telephone.

The problem of improving radio transmission included that of developing a system of signals which could not be intercepted by the enemy. The importance of such a system may be realized when it is considered that practically all secret codes can be deciphered and that the failure of the German offensive of 1918 was largely caused by the interception of their carefully coded radio messages. The United States signal corps was successful in developing a new system which was not only secret but which was practically free from interference by the enemy. This system was the invention of E. Leon Chaffee, '07. The device was perfected and demonstrated in France but its use on the fighting line was prevented by the armistice.

Some mention has already been made of the work of Frank W. Caldwell, '12, in connection with the design of propellers for the air service. In addition to designing and testing practically all of the propellers actually used, he did considerable work in developing new types, including a steel propeller and one made of Bakelized canvas, but perhaps

THE DEVELOPMENT OF NEW WEAPONS

most remarkable of all, he perfected a propeller of variable pitch and a reversible propeller for use as a brake in landing. So far as is known, Caldwell's are the only designs of this type which have ever proved successful.

Lieutenant Godfrey L. Cabot, '81, was also engaged in experimental work in connection with airplanes, his particular problem being that of picking up burdens in flight. The experiments were in the main satisfactory and the results increasingly successful. He finally succeeded, on October 3, 1918, in picking up a burden of one hundred and fifty-five pounds from a moving seaplane and rose with it to a height of one hundred and fifty feet. It is interesting to note in this connection that Cabot is somewhere in the neighborhood of sixty years of age. Nevertheless, he generally pilots his own plane and states that he found considerable difficulty in mastering the standard control of the Navy seaplanes, which differs somewhat from that of the Burgess-Dunn machine, which he generally flies.

Peter Schwamp, '78, worked on improvements in airplanes and succeeded in developing a special covering of ply wood for use on airplane wings. The material had a high factor of safety and was giving satisfactory results when the armistice put a stop to further experiment.

A rather unique invention, which, however, unfortunately never received a trial in action, was a man-lifting kite devised by Welles M. Partridge, '96. The kite was so arranged that it could rise from the water when towed by a torpedo boat destroyer, and it was intended to be used to locate hostile submarines.

Daniel W. Willard, '70, designed a net for the purpose of entangling submarines. The device worked well in models, but Willard states that so far as he knows it was never adopted.

While many of our men were thus engaged in improving listening devices and aircraft, others were at work in devising new types of ordnance. One of the most successful among these was H. W. Kenway, '05, who adapted a one-pounder gun for use as an automatic rifle upon airplanes equipped with the Liberty motor. The gun was so designed that it could fire through a sleeve inserted in the cylinder head casting. Arrangements were made by which the aviator could range upon the hostile machine with tracer bullets, and having found his target could quickly fire eight high-explosive shells. The gun was found entirely satisfactory when tried at the Aberdeen Proving Grounds but it had not been tested aloft at the date of the armistice.

Lieutenant Samuel Sewall, '17, was also engaged in improving ordnance but was given a very different problem. He was assigned to the Bureau of Inventions at Paris to work out a scheme for increasing the range of heavy guns. The method used was entirely different from that employed by the Germans in the seventy-five-mile "Bertha," but it would appear to have proved most satisfactory, for an announcement has recently been made from Paris that a new gun is contemplated which will have a range of upwards of a hundred and fifty miles.

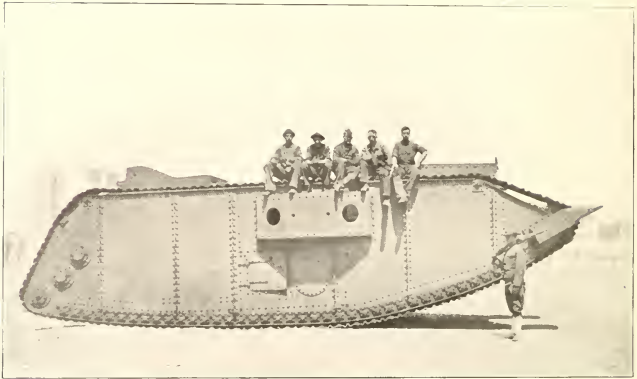
The problem of increasing the range of the torpedo was also one in which considerable progress was made. It is understood that owing in part at least to the work of a group of Tech men, the range of the American weapon was increased by several thousand yards.

Among these men may be mentioned, James S. Currier, '04, who worked in civilian capacity and Lieutenant James A. Flint, '18. Their duties were of course of a strictly confidential nature but Flint, who was in charge of the long range torpedo work during the summer of 1918, states that some of the longest shots ever made were accomplished at the station under his direction.

Arthur W. Thayer, '77, also invented an improvement in firearms intended to better the automatic firearms, but his scheme does not appear to have been adopted.

A rather unique investigation was undertaken by Ensign Charles Bettinger, '01. He worked at the research laboratories of the Eastman Kodak Company, making a study of the properties of various paints and pigments. Not only was a large amount of valuable data obtained relative to the value of different pigments for camouflage, but it was also found possible to develop secret identification signals for ships and aircraft.

Another piece of work which attracted considerable interest among Tech men was the design by Professor E. F. Miller, '86, of a steam-driven tank. It may be said that the



THE STEAM-DRIVEN TANK DESIGNED BY PROFESSOR EDWARD F. MILLER, '86

attention attracted to the tank has somewhat overshadowed the invention which gave rise to its design. Early in 1918 Major A. S. Smith, Superintendent of Buildings and Power, at the Institute, read of certain equipment used by the Germans in the spring drive. He saw opportunity to make a great improvement and took the matter up with the Chief of Engineers. Major Smith's idea was considered of such importance that he was placed at the Institute on special duty to develop his invention. At this time it appeared to render the device serviceable a tank driven by steam would be necessary. Professor Miller was asked to design such a machine, and in accordance with this request a fifty-ton tank, sometimes known as the "America," was designed and built. It should perhaps be stated that the "America" was not, as many people supposed, a combat machine. She was merely a model, her steel sides being of common boiler plate and the shoes of her caterpillar treads of the ordinary steel castings, which were not even annealed. She, however, served her purpose of demonstrating that a tank of that type could successfully be built and driven by steam; with Major Smith's device, in action she was a most terrifying spectacle.

Numerous tests were carried out in the great stockade in the rear of the Institute buildings and proved most valuable. Many improvements were made upon Major Smith's device, and finally Professor Miller introduced one which rendered the use of a steam-driven tank unnecessary. The weapon, of which little more can be said, was quickly put on a basis for quantity production and a number of units were being shipped overseas at the date of the armistice.

The tank "America" had a somewhat less fortunate career. She was ordered to perform during one of the Liberty Loan drives in Boston, and upon this occasion a link in one of her unannealed caterpillar treads broke, seriously damaging her machinery. Repairs were subsequently made and she took part in a number of subsequent tests, but, as has been seen, her usefulness disappeared with the improvement in Major Smith's invention. There were certain features in her design however, which will probably be adopted in future machines.

Some of our men worked upon most extraordinary problems during the war; a number appear too fantastic for belief, although they were based on sound scientific prin-

OTHER MILITARY ACTIVITIES

ciples. Perhaps none was more remarkable than a scheme for destroying submarine bases which was studied by D. C. Davis, '06, in the laboratories of the Westinghouse Company. It is perhaps best not to state what this method was since it may some day prove a very remarkable and terrible weapon in the hands of the nation perfecting it.

All of these inventions had to be kept more or less secret and arrangements had to be made by which patents could be obtained without making public the nature of the new devices. Important work in this connection was assigned to Sidney F. Smith, '86, principal examiner of the United States Patent Office. His particular duty was to take note of the various patents applied for, and where an application seemed to offer possibilities, to bring the inventor and the proper government officials together. In this work Smith co-operated with the Naval Consulting Board and the Inventions Section of the General Staff. He was also active in home defense organizations.

Before leaving the matter of inventions it would perhaps be proper to call attention to a phase of the work perhaps as valuable as the invention of new devices, namely that of preventing worthless or fraudulent inventions from absorbing money and energy.

Immediately after the outbreak of war a person by the name of Garabed T. K. Giragossian announced the discovery of a new source of power and the invention of a remarkable engine which ran upon nitrogen and "free energy." The real significance of this invention will probably never be known. Whether Giragossian really believed that he had invented such an engine, whether he was merely a person attempting to make capital out of the Nation's misfortune, or whether he was acting under the influence of persons interested in delaying our program for preparation will probably remain uncertain. The announcement appealed to many persons who shrank from the prospect of a war conducted by the usual means, and the inventor received more credence than he perhaps deserved.

Congress wisely determined to place the investigation of the invention in the hands of a committee of experts. The men appointed were: James A. Moyer, Edward F. Miller, M. DeK. Thompson, Edwin B. Wilson, and Charles L. Norton. Of the five, four were members of the Institute faculty, namely, Professors Miller, Thompson, Wilson and Norton.

It is quite needless to say that the committee reported that Mr. Giragossian's "invention" offered no immediate possibilities. All serious discussion of the matter was dropped, and it was possible to go ahead with designs for weapons based upon more well-tried devices.

OTHER MILITARY ACTIVITIES

While perhaps the most conspicuous military work of Tech men in the United States was that connected with the production of munitions and equipment, and the development of new weapons, there were many Tech men performing work quite as essential, though perhaps not so conspicuous.

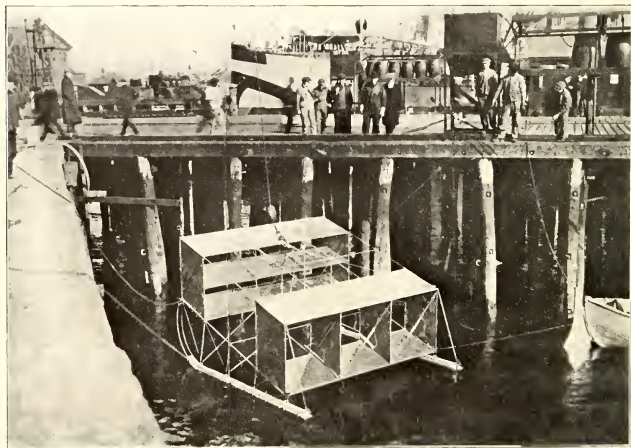
One very important matter was the maintenance of the morale of our men. Morale may be defined as the desire and determination to obtain victory. At the outbreak of war a very poor state of morale existed among the men first called to duty by the selective draft. Many of those reporting to the cantonments could not speak English and understood little or nothing of what the war was about. Many, comparatively fresh from Europe, had brought with them all their national prejudices, and the policy first adopted of placing men of different race and language in the same companies resulted in every variety of internal trouble and lowered the spirit of both the men and officers. Through the work of the Intelligence Section of the General Staff, this quickly came to the notice of the military authorities and steps were taken to better matters, which ultimately resulted in the formation of a separate organization known as the Morale Section.

Major Grafton B. Perkins, '05, was placed in charge of this work and soon demonstrated its importance to such an extent that it became a separate branch of the General Staff, General E. L. Munson being placed in charge as Chief, while Major Perkins continued as Executive Officer. His principal duties were to travel throughout the United States, Hawaii, the Philippines and Siberia to better the conditions under which our soldiers were working and inaugurate measures to improve their fighting spirit. This work was sub-

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sequently extended to the American Expeditionary Forces in France and Germany. It was necessary to do away with the time-honored military methods involving correspondence "through channels" and the work was carried on in a very different manner. It proved, however, most effective. The causes of the discontent were quickly located and remedied. Later on, Captain Grosvenor D'W. Marcy, '05, was transferred to the Morale Branch and became chief of the Military Section. Under him the work was carried and extended to the American Expeditionary Forces with most beneficial results. During the occupation of Germany it was possible in many cases to discover influences which were lowering the morale of our men and to remedy them before the men themselves realized that anything was wrong.

In closing this sketch of the work of our men in the United States, something should be said of those whose work, much against their will, was that of purely routine duty; those



THE KITE INVENTED BY WELLES M. PARTRIDGE, '96

who, for various reasons or for no reason at all, found it their lot to carry on the uninteresting but necessary administration of the Army at home, while their comrades were fighting abroad.

Major-General William H. Bixby, '70, previously Chief of Engineers, U. S. Army, returned to the service, taking up work on river and harbor improvements at Kansas City, St. Louis and Chicago, thereby allowing a number of younger officers to organize engineer regiments for service abroad. Lieutenant Dugald C. Campbell, '19, as a member of the 1st U. S. Infantry was unable to go overseas, but just after the armistice we find him guarding the hydro-electric plants at Electron, Washington, against the Bolshevik uprising in Seattle. Perhaps the most unfortunate lot of all befell Lieutenant Joseph A. Boyer, '12. He says of his record, "Even though I obtained a commission in the Infantry after about nine months as an enlisted man, I never was on duty with troops. Instead

OUR MEN ON MINOR FRONTS

I had 'wished on me' an assignment as assistant staff judge-advocate at Camp MacArthur, and the duties of that job together with those of trial judge-advocate of general courts-martial continued to belie the crossed rifles I wore on my collar until long after November 11. In those capacities, I advised on all sorts of problems ranging from how to create a new development battalion to preparing in Texas a power-of-attorney for a Montana citizen concerning the acquisition of mineral lands in the province of Manitoba, Canada, and I prosecuted all kinds of cases from one day's absence without leave to first degree murder." *

OUR MEN ON MINOR FRONTS

When one thinks of the war, he generally thinks of the battle lines in France, but the armies of the United States and our allies were fighting in many other parts of the world. Mention has already been made of the New Guinea Campaign, in which Captain Lionel H. Lehmaier, '13, participated, and when the United States entered the war, our forces also were engaged in many other places than those from which we most often heard. Lieutenant J. W. Kennard, '18, United States Marine Corps, served first in Cuba, and later in Haiti. Captain Hallet R. Robbins, '05, acted as assistant to the Military Attaché, Peking, China. Edward H. Moffatt, '18, served with the Canadian Field Artillery in Asiatic Russia.

Captain David P. Minard, '19, of the 8th United States Cavalry, who was stationed in the Big Bend district of Texas, tells of the pursuit of a party of Mexican bandits. He says: "We followed the trail of about one hundred and fifty raiders nearly fifty miles into Mexico; made dry camp that night and again took up the trail at dawn. The march became more and more difficult as the bandits circled back through the mountains towards the Rio Grande (the only source of water). We trailed them over mountains and through canyons where it seemed impossible for a horse to obtain footing. Our horses were beginning to break down under the heat and lack of water, when finally as we emerged from the mouth of a long, high-walled canyon the bandits opened fire from a dominating ridge. We went into dismounted fire action and succeeded in dislodging them. A five-hour running fight ensued, with the bandits retiring higher and higher into the mountains. The scene of the skirmish was a country full of deep gorges and high mesas. The Mexicans took full advantage of it, they would retire rapidly, climb the mesa and keep up a continual sniping until we were within six hundred yards and were forced to dismount. A further advance would cause another retirement. This continued until darkness, when the exhaustion of our horses and supplies forced us to head back for the American side of the river. We went into camp late that night after having marched over eighty miles since daybreak. Our only casualty resulted when the bandits first opened fire, killing one of our men. The Mexican casualties were twenty-five dead; the number of wounded is unknown."

Another very different but none the less typical incident is recorded by Lieutenant J. Barten Nealey, '11, who, after his discharge from the Army, took charge of the supplies for the Young Men's Christian Association with our troops in northern Russia. Of this sector he says: "Along the coast the country is a treeless, barren waste (tundra), farther south a stunted growth of evergreen trees appears, which as we go still farther south gives place to heavy forests not unlike our own. Everywhere are vast swamps, and the water, even in the rivers, is so unhealthy that it has to be boiled twenty minutes before drinking.

"The principal front where was concentrated the largest allied force was spread like a fan from the Dvina and Vaga Rivers some two or three hundred versts south of Archangel with Beresnick as the 'Base.' The front line was made up of a series of positions consisting of one or two lines of trenches guarded by rifles, machine-guns and trench mortars, fronted with wire entanglements and supported in the rear with some artillery. Many of the positions were in the outskirts of villages where the log houses were used as block-houses, others were in the woods and swamps. Raiding patrols were frequently sent out and the fighting much resembled our Indian warfare. During the summer these raids were of course conducted in broad daylight, as the sun shone twenty-four hours of the day, but later when the sun never appeared at all or between seasons, when it merely dipped below the horizon, raids were made under cover of darkness.

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"One more or less humorous incident occurred when I was in the front line one night at Mala Beresnick. A party of us went out on patrol, gained contact with the enemy in their trenches and fired upon them just as a battalion of reserves were marching up in their rear to relieve them. This reserve battalion hearing and seeing the firing in the darkness thought it was the Allies firing upon them and attacked their own front line from the rear — the front line units in turn thinking they had been flanked and cut off 'about faced' and engaged their own reserves. We quietly withdrew and they maintained the fight for some two hours or until the sun came up and showed them their error.

"Several times the 'base' at Beresnick was cut off from Archangel by Bolsheviks capturing villages between, although they never controlled the river for long. On account of this we who traveled constantly from place to place alone had 'our wind up,' as the British say, most of the time.

"In October, the allied forces were withdrawn and thus ended the North Russian Expedition and a country most admirably adapted to its former use, the enforced abiding place of desperate criminals and political enemies, was given over to the Bolsheviks. May they enjoy its charms as much as did the Allies."

The story of the work of Tech men in the Army and Navy of the United States as here set forth is at best but fragmentary. The original manuscript contained only the stories of those men who seemed to have done something or left some record of unusual interest. This manuscript has been cut, first in half, then in quarters, and what remains does not tell the one-hundredth part of the actual work performed by our men. It is to be hoped, however, that the reader will remember that there were very nearly 5,000 men in the service, the condensed account of whose records will be found in the Register of Military Records. (Chap. XI.) If the reader desires to know what some individual did, let him look in this record, and notice in what place his friend served, and the nature of his service, then let him return to these chapters and read therein the account given of any one of his comrades in the same branch and in the same work, and he may feel reasonably sure that he is reading a fairly accurate account of the deeds of the man in whom he is interested.

CHAPTER VIII

TECH MEN IN THE MILITARIZED SOCIETIES AND OTHER AUXILIARIES

Up to this point the narrative has dealt chiefly with those of our alumni who served in the armed forces of the United States and the Allies, but wherever these penetrated there were present certain civilians, whose duties were so closely connected with those of the military that it is in many cases difficult to separate them; the organizations to which they belonged were considered so vital to the combatant forces that they were given official status, their men were uniformed, and in some cases actually enlisted; several of them were known as "militarized" organizations.

Among these societies, that which came most closely in contact with combatant troops, and whose activities cannot in fact be separated from those of the various fighting units, was the American Field Ambulance Service, and its successor, the American Field Service. As will be remembered, the object of this organization was to provide ambulance drivers to handle the wounded, bringing them from the dressing stations near the front line to the hospitals in the rear. The life was one of hardship and excitement, and for the most part the personnel was made up of young, adventurous men. There were, however, some interesting exceptions to this rule; for instance, B. B. Crowninshield, '89. Crowninshield was a volunteer driver in Section 7. from January to July, 1916, serving during most of this period in the Verdun sector, during some of the most desperate German attacks. Later on he was refused by Roosevelt, and also by the United States Navy, upon the ground that he was too old; but there was certainly nothing in his previous record to suggest incapacity for active service. Another of the older men who aided in this work was Roland W. Stebbins, '99, who was a member of the service almost from the beginning in 1915 and some of whose experiences will be recorded a little later.

The work of the ambulance men was of every kind and type, varying from monotonous drudgery to most exciting adventure. The following extract from a letter written by Kimberly Stuart, '19, gives a very fair idea of the average type of work: "Imagine on some rainy, stormy night that you are in France. Go out and look down the street. Think of driving over it without lights, when there is as much traffic as there is in the middle of town in broad daylight. Then sprinkle the street with huge trucks loaded with shells in place of the delivery wagons, and put guns, caissons, and supply wagons for the other things one might meet at home on the street. Then cover the whole roadway with slimy mud, and shell holes varying in size from a foot and a half to six feet in diameter and from a foot to five feet in depth. Then turn out all the lights, have everything going like the deuce, trucks skidding (for chains are unknown here) and guns and caissons bouncing all over everything with the horses on a stiff trot. Then picture the batteries, their flashes lighting up the outlines of the loaded trucks or glinting on the long muzzle of some seventy-five. Add columns of men, soup-kitchens, other ambulances, speeding staff cars, motorcycle dispatch riders, cavalry and no end of big two-wheeled carts. Just imagine the job it is to drive through this mess. Sometimes one has to go in low for a mile or more, the traffic is so bad. The other night I was forced to stop for half an hour to let the procession of stuff pass me. I counted one batch of trucks and there were thirty-two of them, and that was only one group out of several miles of 'ravitailement' (that is supply-trains), that one meets."

However, while this was the usual experience of an ambulance driver, there were occasions upon which far more exciting incidents occurred, and one of these as described by Stebbins gives a vivid picture of the scenes connected with the German gas attack at the second battle of Ypres, and the shelling of Dunkirk. "On the morning of April 22,

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about ten o'clock, a wonderfully beautiful, quiet day, we were overhauling our cars in the freight-yard in front of the evacuation sheds, while waiting for a train of wounded and sick. Suddenly the siren out in the harbor belched out the warning that Taubes were coming and for every one to seek cover. In a few minutes we saw two Taubes circling around with beautiful balls of white cotton appearing about them — shrapnel shells from the forts and from the British anti-aircraft guns stationed along the beach at Malo-les-Bains. Immediately a terrific explosion occurred in a roundhouse of the freight-yard; simultaneously, the Taubes dropped something that looked like tinsel, and immediately beat it up the coast.

"Then started the first big bombardment of Dunkirk with seventeen-inch shells, weighing twenty-eight hundred pounds, and coming from more than twenty miles away. The shells dropped almost vertically and with no warning, and landed at exactly seven-minute intervals, until about three p.m. with one or two let-ups. The second shell struck just outside the freight-yard gates. With two men I jumped into my car and started for the gate, when we were deluged with bricks and glass, having to cover our heads with our arms for protection. This shell had landed in a courtyard back of some large houses and had wrecked them pretty badly. In the cellar of one we found three badly frightened women in a little bomb-proof cell; in the next house was a badly injured woman. Just as we got into the street, a shell landed across a canal, two hundred yards away, absolutely demolishing a three-story corner house, which was next to a very large hospital filled with wounded.

"We raced from explosion to explosion, when we could find them, driving over glass, bricks, timbers and household utensils, taking the dead to the station and the wounded to any hospital that could take them in. Some ambulances had gone to an explosion alongside a canal. On the opposite bank was a six-story tobacco warehouse, splendidly built of modern mill-construction. It was used as a billet for hundreds of convalescent soldiers who were resting before returning to the front; most of the men were in front of the building receiving their rations. At the seven-minute interval, a shell dropped through the rear of that building, tearing away portions of the roof and of five floors, together with a large part of the rear wall. It absolutely demolished a house back of it, and wrecked a house across the street. Some men who were still in the building were drawn by suction, down into the wreckage behind. By the time we had crossed the canal the dead were being brought out, some killed by concussion. Cadets were called to help the soldiers and they dug for many hours for those buried. We returned off and on until evening to carry away any dead found.

"About three o'clock as the bombardment had apparently ceased, we went to our billet for food, to find our faithful cook (we were then receiving officers' raw rations) had beaten it for the open country. She never returned.

"After lunch I started for the town, when I had the luck to overtake a charming nurse, who got up on the seat and began questioning me. She asked if I were an American; then if I thought that the Boche would bombard us again or bombard Malo. To the second question I replied, 'probably', to the third, 'no, because they want to get the railroad station, evacuation hospital sheds, the bridge and the docks, which are over a mile and a half away.' She replied, 'But a shell landed just outside my hospital this morning and I do not know what to do. My daughter refuses to go unless I go also. I can't leave because I have all the nurses under my care!' I then tumbled to the fact that this charming, pretty, and courageous lady was the Duchess of Sutherland.

"Next night, April 22, we had only two men on duty at the station. I rolled into my blankets about nine, but could not sleep. About eleven-thirty one of the men brought orders to have the whole squad at the station at one a.m. All that he knew was that a tremendous attack had been made, and that many 'blessés' were coming.

"We were prepared for a shock, but not such a one as we received when the long train rolled in, laden with men, many badly mutilated, who had been subjected to the first asphyxiating gas attack. The men unloaded from this train were coughing fearfully, and most were continually nauseated. If they lay down or sat on the edge of their cots, they had fear of choking to death. Two or three would clasp arms and stagger around,

TECH MEN IN MILITARIZED SOCIETIES

always coughing. Their eyes, which were protruding, and their skin were the color of a potato peel. When we had evacuated these poor devils to different hospitals, we were ordered to line up in the freight-yard at four-thirty A.M. Rumor had it that we were going to the front.

"Our route led through Poperinghe to Woestende. When we entered the narrow streets of Poperinghe, the traffic was superbly handled by London military police. As we had right of way, we progressed fairly well until we came to the big Public Place — and what a sight! It was absolutely filled with refugees from Ypres and its suburbs, four miles away. The Boche had started shelling Ypres and the near-by country, putting 30,000 shells into the city and suburbs. These poor people had fled to Poperinghe, bringing what they could carry. Here, one beheld an old two-wheeled cart containing a stove and a hen-coop, on top of which was a feather bed, on which was seated an old shrivelled-up woman, chattering from fright, the whole outfit pulled by a little donkey and a cow, guided by an old man; there, another two-wheeled cart, filled with little children, drawn by a man and some boys and girls, and the family cow tied to the back of the cart. On all sides people were sitting on their bundles or standing patiently, but every face a picture of despair. Later, the Boche shelled the city. I have often wondered what became of those thousands of refugees.

"When we came to Woestende, a small Flemish village built along the military road running from Ypres to Furnes, we were met by a sad sight. Lying, sitting, or standing on both sides of the broad street were hundreds of wounded men, waiting to be carried to the railroad some ten miles away. Many of these had dragged themselves four miles from the trenches. I saw one soldier making slow progress, using a golf club for a crutch. We loaded our ambulances and started for Poperinghe.

"That day and for the next ten days we often were obliged to wait an hour at a time before we could unload our wounded, due to the great numbers of French, British, Belgian, and American ambulances coming from the Yser Canal and Ypres districts."

Shortly after the United States entered the war, the American Ambulance Service was reorganized as the American Field Service, many of its drivers being transferred to drive trucks instead of ambulances, and most of the new recruits of the corps were assigned to this class of work. We have already seen how the men of the Tech Unit were for the most part absorbed into this organization as replacements to Section 526. This camion corps became part of the motor transportation of the French Army, and from the name of its commandant received the name "Reserve Mallet." This organization is one of the most famous which took part in the war. It was "reserve" only in the sense that it acted under the orders of General Headquarters only, and hence was thrown into action at any point on the front where its services were required, needless to say, behind the most active sectors. Some idea of its work may be gained from the fact that, while the American Expeditionary Forces expended altogether a little over three and a half million shells of all calibers, the Reserve Mallet transported between June 6 and November 11, 1918, no less than six million shells and something over twenty-three thousand tons of small arms ammunition. Its activities were not confined to ammunition; one of its most important duties was to rush infantry to threatened points, or to aid in making a strong concentration for an offensive, such as we have already described on page 176.

One of the most important opportunities for this kind of work came just after the German drive in the spring of 1918. The following account of this affair given by Irving G. Hall, Jr., '18, is a very typical example, not only of the kind of work, but also of the strain upon the men which resulted from the almost continuous day and night driving. He says: "Probably the hardest piece of work, but far from the most exciting, which I did in France was driving a five-ton Pierce-Arrow truck in a certain troop convoy in March, 1918. During the five days previous to this convoy we had been working along the front near Compiègne and had managed to get only about eight hours' sleep in that time, most of it being in the driver's seat waiting to be loaded. On this particular morning, March 26, we started at three in the morning to Vitry-le-François by way of Rheims, Epernay, and Chalons. We loaded with troops about 8.30 P.M. and went on toward — nobody knew where. We passed through Chalons and Epernay again that night, and got to

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A 42-CENTIMETER SHELL, WITH A COMRADE OF W. W. HOSMER, JR., '06, STANDING BESIDE IT

Château-Thierry about eight in the morning. The progress was very slow on account of there being over 8,000 trucks in the convoy and traveling at night without lights. That night we were back in Compiègne and finally unloaded our troops about 1.30 A.M. at Montdidier. Then, empty, we returned to Soissons by another route, arriving about 1.30 A.M. the next day. We had been on the road driving continually for seventy hours and during that time had only three meals, one of them being hot, besides what we could pick up along the route. That night we had twelve hours' sleep and were sent off on another trip."

In many cases the Ambulance Service served as a stepping-stone toward enlistment in the combatant forces of Great Britain or France, especially the latter. Lieutenant David Carb, formerly of the English Department, has already been mentioned, as has Lieutenant Robert M. Allen, '16, who after his discharge from the Field Service, and before he entered the French Army, acted as Mr. Gibbs' assistant in the Tech Bureau at Paris. (See Chapter II.)

Another with much the same record was Fenton G. Elwell, '19. Elwell, finding himself unable to enlist in the United States Army, followed in the footsteps of Kenneth Weeks and Dugan, by entering the Foreign Legion. He subsequently graduated from the artillery school at Fontainebleau, and took part in practically all of the later actions of the war, including Villers Bretonneux, July, 1918, Moreuil, August, 1918, Plessier, August, 1918, Noyon, August, 1918, La Fère, September, 1918, and St. Quentin, October, 1918. Others who remained in the ambulance work to the end have sent us some rather interesting information. Frank E. Parsons, '15, in particular, who has a most notable record, including five major operations and much service in defensive sectors, happened to be assigned duty which took him into Strasbourg just after the armistice, whence he was moved to Mannheim, and attached to the 1st Colonial Division, that is to say, the Foreign Legion, with which Elwell and Allen were at that time serving. Part of his work consisted in evacuating the wounded allied prisoners as they came in by train from the interior of Germany. Regarding them he says: "One incident will always remain foremost in my recollections, and that is the condition of the unfortunate English prisoners. Nearly

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every one of them was tubercular, and had a limb amputated, the wound nearly always being septic, and in such a condition that they knew they were going to die. Nothing but skin and bones, their eyes staring out of their sockets, and with the hectic flush of men near death, they made few complaints, and for the most part only wanted to live long enough to see 'Blighty' once more. Several, however, begged the French surgeons to put the knife through their hearts to end the suffering."

Altogether 47 Tech men served in the American Ambulance and American Field Service, and their record is one of which they may well be proud. They were classed for the most part as privates in the French Army, and their pay consisted, as a rule, of five cents a day, French rations, and a few ounces of tobacco. The incidents described above give a sufficient picture of the sleepless, nerve-racking work; yet these men served not for money, nor for glory, but purely in the belief that they could alleviate human suffering and help the cause of distressed freedom against the forces of an evil autocracy.

By joining the forces of foreign powers before the United States was taking an active part in the war, many of them lost opportunities for advancement in their own service, yet in their letters there is not one word of complaint; rather one notes pride in their organization. Perhaps it is the best measure of how unselfish was their service that most of them considered their work with the Ambulance Service was not sufficient, and sooner or later entered the combatant units of the various powers. Not a few lost their lives later in the war, and in this connection we may especially mention Lieutenant Dinsmore Ely, '18, Cadet Pilot Gordon Stewart, '20, Lieutenant W. K. B. Emerson, Jr., '19, all of the air service. Ely and Emerson were killed in airplane accidents. Emerson and Stewart had both won the Croix de Guerre, and it would appear that Stewart won his while in the Field Service, although it is not certain. Sergeant George W. Root, '19, also later lost his life after having transferred to the Tank Corps in the United States Army. The gallant death of Braxton Bigelow, '10, has already been described. (See page 166.)

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Somewhat less closely associated with the fighting front, but nevertheless more or less a part of the military organization, was the Red Cross. In the militarized branch of this organization 52 Tech men were engaged, and many were given duties of the greatest importance. It will be recollected that shortly after the outbreak of war, missions were sent by the United States to nearly all of the European powers, particularly those which for one reason or another were suffering from lowered morale and showed a tendency to give up the struggle.

The Red Cross was strongly represented in these missions by well-known sanitary engineers, for many of our allies at this period were especially harassed by epidemics caused by lack of proper sanitation. As a result a goodly number of the men chosen were graduates of our courses in biology and sanitary engineering, or members of the Institute staff. Perhaps the most important of these missions was that sent to Russia.

Among the members of this committee we find Doctor George C. Whipple, '89, Professor of Sanitary Engineering at the Institute, Professor C. E. A. Winslow, '98, of Yale, and Henry J. Horn, '88, formerly Vice-President of the New Haven Railroad. Their object was first of all to do something immediately to restore the morale of the Russian people. The Red Cross Commission was intended to work in connection with the American Railroad Commission already in Russia, to insure that shipments of relief supplies might reach their destinations without delay. It was also intended to outline an organization for the Red Cross, which should handle relief work throughout Russia and Siberia, but as a matter of fact, the mission was unable to accomplish as much as might have been desired, owing to the interference of the Bolsheviks. Professor Whipple has given us an account of some of his experiences which may prove of interest.

"One of my assigned tasks as a member of the American Red Cross Mission to Russia was to investigate the sanitary condition of a part of General Korniloff's army, and, as a member of a committee headed by Major McCarthy, to report on the need of field-hospitals, medical supplies, ambulances, and sanitary service. We went to the Rus-

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sian front near Minsk during the latter part of August, 1917. Fighting was then going on and the sector visited was regarded as fairly active, though becoming quiet. Air raids on the hospitals of the Russian Red Cross were still of daily occurrence, and shells were dropping near us when we were in the trenches. I had no thrilling adventures worth talking about, but had opportunity to learn much about the Russian army and the Russian soldier.

"We visited the 10th Army, composed largely of Siberians — fine-looking, good-natured fellows, largely of the peasant class, with officers who appeared to be well educated. Most of our time was occupied in inspecting hospitals, first-aid stations, Red Cross stores, and so on. Major Grow, of our party, had been with the 8th Siberian Regiment two years before and took delight in visiting his old comrades in arms. He remarked on the lessened discipline and the lower morale of the army under the Kerensky régime — no salutes from



(U. S. Official)

TYPICAL REFUGEES

privates and a corresponding attitude of 'I don't care' and 'I am as good as you' about the Colonel's headquarters.

"Before joining the Mission at Petrograd we called upon Korniloff, then Generalissimo of the Russian armies, at his headquarters at Moughilov. He was expecting us and a large French automobile with a red square painted on the door met us at the station. This had been one of the cars of Czar Nicholas, and the red square covered the old double eagle, which had been painted out by the revolutionists. After passing many imposing sentinels, the last of whom was a big Caucasian dressed in a tall, black fur cap and standing as straight as a ramrod, we entered the General's room. He was a small, thin, wiry man with almost oriental features, a short black beard, a small head, small steely eyes and hands as delicate as a woman's. His face was kindly. He wore a simple gray coat without ornaments, but with a wide red stripe on his breeches, one of the marks of a general. He looked to me like a crafty man, but not like a dictator. We came away feeling that he was not 'the man of the hour.' The conversation was in Russian, through an interpreter, but we afterwards learned that the General spoke good English.

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"During our trip we met a good many officers. Later we were surprised to see a number drift into the hotel at Petrograd. A few days after that came the march of Korniloff's army against Petrograd — without doubt a counter-revolutionary movement. I cannot help feeling that the plot was brewing while we were with his army at the front."

A similar mission was that dispatched to Roumania, but it too found itself almost powerless, because of despondency and treason. One of the members, George W. Bakeman, '13, Special Assistant to the American Ambassador to Russia, and a captain in the Red Cross, has furnished us with some extracts from his diary, which give us an interesting picture of conditions.

"Jassy, Roumania, January 25, 1918. I have just returned from a trip through Roman, Sascut, Tecuci, and Galatz, where I went to see what is being done in the way of preventing the recurrence of typhus, and to help lay out plans for the extension of our food distribution to the civil refugees. In and around Sascut, Topping is already distributing food and clothing to about fifteen thousand people weekly and thereby doing much to alleviate the suffering. Of course we can't do very much and our supplies would hardly keep the poor beggars alive, but they go a long way in helping out. At Tecuci, where George Twose and I went to set up a new distribution center, we had great difficulty in getting down to real work because of the hospitality of and rivalry between 'Madame la Présidente de la Croix Rouge,' and 'Madame la Générale.' We were wined and dined in grand style and generally spoiled, but in spite of that I feel that we did much good, as we made preliminary arrangements for a distribution of food to about six thousand refugees next week. Between Tecuci and the front, we found colonies of refugees living in caves. They are horribly crowded, dressed in rags or nothing at all, and some of them reported that they had eaten nothing but soup made from the entrails of animals which they had found behind the front lines — for three weeks. Dozens of little tots are to be seen running about in the cold with nothing on more than an extremely ragged shirt, and some haven't even that. In one cave which I entered, lived a widowed woman and her three half-grown children. It was a mere hole in the side of a hill, not over eight feet by ten in area and was not high enough to stand up in. No food was to be seen anywhere except a few grains of corn, and the only clothing or bedding was a pair of very thin blankets.

"As if there was not trouble enough already in this poor country, Russia has declared war on her and Roumania has been forced to send troops over the line in an effort to insure a food supply. It is really awful to think of what is going on here. This country came into the war largely at Russia's behest, gave extravagantly of her meager food to feed the Russian armies, and then when the time came for repayment the latter declares war. We are now cut off on all sides. Thank God that we brought in that train-load of fish. Every one laughed when they saw so much salt herring, but now I guess that it will be appreciated.

"January 29. Odessa is once more in the hands of the Bolsheviks, having been recaptured from the Ukrainians.

"February 8. To-day the Bratiano Ministry resigned as a result of another German ultimatum.

"March 6. The end seems to be drawing near.

"General Berthelot has ordered the preparation of trains with which we are to depart if peace is made. How to go through is a question. The Germans say that they will allow us to depart through Austria only on condition that the Allies release an equal number of German officers of equal rank. I am not at all sure that we could even get through the lines in Besarabia; at any rate, we shall start for somewhere sometime. In the meantime we are carrying on our distributions as usual.

"March 12. En route from Jassy to God-knows-where. On the morning of the ninth when I arrived at the office I was notified that we were all to be ready by ten o'clock to go to the station to the trains.

"The final picture of the Queen keeps coming back to me with her last words when she had at last summoned us all to her palace to say 'Goodbye'; how she had broken down and wept and hoped that we would sometimes remember that there was still at least one loyal soul in Jassy that longed again to see a friendly uniform and hear an English phrase.

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"By cutting across country on a new railroad that has just been finished — or rather almost finished — we reached Nikolaev, where all of the first four trains came together for the first time. We have learned that General Berthelot had gotten through safely and that German advance-guards had missed our last train at Razdyelnia by only a few miles. They are now rapidly approaching Odessa from Kiev.

"March 13. Passed through Kharkov last evening and are apparently now safely on the road to Moscow, as the track is clear from here on."

These political convulsions in Europe had most serious effects upon all the Red Cross missions, but perhaps none found themselves in so desperate a case as those attached to the Servian front. Major Edward Stuart, '10, who did splendid work as a member of this mission, has given us some short account of his experiences, which follows: "I was in the Balkans most of the time during the war, and had a few Tech men with me, Bates, Bakeman, and Gage, '13, Fox, Magoon, and Berger, '14, and Doctors Osborne, Cornelius, and Mendelson of the Harvard-Tech School of Public Health.

"The great epidemic of typhus in Servia of 1915 was interesting enough, but its interest was overshadowed by the invasion by the Central Powers the latter part of that year. We all pitched in and did emergency field-hospital work at the front while the retreat was taking place; strange work for engineers, dressing wounds and performing crude surgical operations. It had to be done, as there was no one else to do it at the time, the three hundred doctors whom Servia had at the beginning of the war having been reduced to one hundred by the epidemic.

"Finally, when the whole Servian army, all the prisoners of war, and a large portion of the civil population were pushed back into the valley where Servia joins Montenegro and Albania, we were all obliged to take to the trackless, snow-covered mountains to make the best way we could to the sea. Probably the worst horror of the war was the Armenian massacres in Turkey, but the crossing of Albania by the troops, prisoners and refugees was, in my opinion, next. No transport, no food, no roads, no shelter, cold, and thousands of deaths daily; to make matters worse, bands of Albanian bandits were ambushing and shooting at the ragged file for plunder.

"Our group managed to lay in a stock of sardines at Nish as we passed through, so we had, at least, a sardine diet for about six weeks. It took me about two years after that to get to the point where I could look a sardine in the face again.

"The narrowest escape we had was one night when we came upon a small stone hut in the mountains, with nothing but loopholes as windows. We were put up for the night by the proprietor, a bandit by profession. We slept in peace, but the following night, a group of Servian officers slept in the same place, and all had their throats cut during the night. The old Albanian evidently respected Americans."

While many of our men were thus engaged in missions of diplomacy and mercy among our allies, others were attached to a very different branch of the Red Cross, namely that which provided for the welfare and comfort of wounded and convalescent soldiers. One section of this work was the canteen service, and one or two of our men have given some account of it. Some of the most interesting work seems to have fallen to Lieutenant Thomas R. Plummer, '88. In the fall of 1914, Plummer had been appointed attaché of the United States Embassy at Paris, and for the next three years was busy in handling correspondence for various refugees and prisoners. Later on he was assigned the interesting work of inspecting and reporting on the condition of prison-camps in France, and also in Germany. In November of 1917, he apparently felt that the work of the American Embassy was not sufficiently active and, having obtained a commission as lieutenant in the Red Cross, he took charge of canteen work, not as might have been expected, in some large city, but with a mobile unit, Canteen No. 31, at Moyennoutier in the Vosges. Although fifty-seven years of age, and finding the duty a severe physical strain, he continued at work until the armistice. Shortly afterward, perhaps in part as a result of the sudden relief from the nervous tension and excitement of hostilities, he fell ill, and died after some three days of sickness, on November 24, 1918. So faithful was he in his duties, and so energetic, that he won from the French government a citation and the Croix de Guerre for his unceasing activities in his sector and those neighboring.

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It would be interesting to know what Plummer's impressions of the various prison camps were. We have already mentioned the feeling produced in Parsons of the American Field Service by the returning British prisoners, and it is worth while to notice how his observations are corroborated by other Tech men, working with the Red Cross. Major Carroll Bennink, '99, writes: "While at Nancy we met the first returning prisoners from Germany, who had been turned from camp to walk forty miles. With the very efficient help of Lieutenant Lord (or rather I helped him) we got beds, cocoa, food, and new wool underclothing, and fed and clothed the chilled and famished men. The first four who arrived had left two comrades dying on the road. All were like skeletons."

Bennink, who by the way had been refused by the American Army because of his age, enlisted in the Red Cross upon condition that he should be sent to the war zone. In July of 1918, he was sent to the front near St. Mihiel. As will be recollected, in early July, the Germans, although checked in their advance upon Paris, were still upon the offensive, and were preparing for their greatest effort. With this object in view, they were maintaining a heavy pressure along the entire line. The French were decidedly nervous and Bennink was called upon to take his motor transportation to the front, in order to be in readiness to haul away hospital equipment in case of a sudden and successful hostile attack. Fortunately, the attack never developed; but the artillery fire was at times heavy, and a 210-mm. shell nearly disposed of the largest motor truck in his train. Later on, when the 26th ("Yankee") Division moved into the vicinity, Bennink was able to render them considerable assistance, distributing no less than 15,000 packages of cigarettes, and considerable quantities of chocolate, coffee, and other delicacies. He was also able to aid in supplying hospitals with ether, cots, gasoline, and a certain amount of motor transport.

While the work of the Red Cross in caring for the wounded soldiers was most valuable, it was doing an even more important work in the relief and care of civil populations behind the lines. Perhaps nowhere was this work more necessary than in France. The conditions are too well known to need description, yet it is possibly well to record the salient facts. The population of the great manufacturing districts had been driven from



A NATIONAL HIGHWAY IN THE ZONE OF ADVANCE

(Underwood & Underwood)

TECHNOLOGY'S WAR RECORD

their homes and forced to take refuge where they might. Housing in France is generally poor, most of the dwellings being some hundreds of years in age and entirely unequipped with the most rudimentary sanitary conveniences. The refugees were obliged to find such dwelling-places as they might, and the best, according to American ideas, would scarcely be considered fit for human habitation. The worst can hardly be described. Families and groups of families were huddled in canal-boats, cellars, and abandoned dug-outs and fortifications. Moreover, food, while fairly abundant, was lacking in certain very important constituents. In particular, eggs, butter, and milk were almost impossible to obtain.

Nor was the condition of the population behind the German lines as good, for here every available dwelling was taken over by the conquering army and transformed into barracks, the people being obliged to find shelter in the meanest and smallest houses. The quantity of food remaining when the conquerors had made their requisitions was not enough to support human life.

Under such conditions, there could be only one result, the spread of that terrible scourge of the human race, tuberculosis, which accounted for more human lives than ever did machine-gun bullet, shrapnel fragment, or poison gas. To fight this dread disease the Red Cross established in Paris a Bureau of Tuberculosis which co-operated with the Commission for Prevention of Tuberculosis of the Rockefeller Foundation. One of the members of the Bureau of Tuberculosis was Doctor Selskar M. Gunn, '04, who was placed in charge of the educational work in connection with this commission, a work which he continued later in a civil capacity as assistant director of the Tuberculosis Commission of the Rockefeller Foundation. The one great means of checking the disease was to make the French peasant realize that it is preventable and curable if proper steps are taken in time. Every possible method of accomplishing the desired result was used by Doctor Gunn, including the best practice in modern advertising, and all those measures which have been tested out and found effective in the United States. The educational work was carried on very largely by traveling exhibits. These exhibits were transported in trucks, each unit including a moving-picture outfit, with the necessary motor generator, an American directress, two lecturers, a man and a woman, a mechanic and an advance agent. The whole outfit travelled from town to town, much after the manner of the small circus; in the small farm villages of France nothing could have made such a sensation as the arrival of one of these units. In addition, millions of pamphlets were distributed, and practically every village in France either has been or will be visited. The results, Doctor Gunn tells us, have been most encouraging, for the people have taken hold more quickly and seem to have a better understanding of the situation, than has generally been the case in the United States. Later on, Doctor Gunn also did work of a most important nature among the Czecho-Slovaks, for whom he has conceived the warmest admiration. For his services he received from the grateful people of France the title and decoration of a chevalier of the Legion of Honor.

Doctor Gunn, in sending in his record, points out that the fight against tuberculosis in France will be very hard indeed unless something can be done toward properly planning the rebuilding of the cities of France, and it is pleasing to note that among the special commissioners of the War Council of the Red Cross sent to Europe to report on conditions, arrange for the work of reconstruction and organize plans to aid in France and Belgium, is Major George B. Ford, '00. Mr. Ford has for some years been one of the leading city planners of the United States, and has shaped some of our largest civic reconstruction work.

It may be noted that the Director of the Bureau of Construction of the American Red Cross who had charge of the expenditure of the funds for reconstruction was Major William Emerson, who has since taken charge of the Department of Architecture at the Institute. Professor Emerson was charged with organizing a staff composed of Belgian, French, English, American and Canadian men and women who drew up plans and secured the necessary labor and material for erecting buildings of all types required by the Red Cross in France and Belgium. Some of the work was carried on for the American Red Cross. The greater portion, however, was undertaken for French relief societies.

THE RED CROSS



SUPPLY TRAIN OF THE FIRST ENGINEERS, MOVING THROUGH THE DEVASTATED AREA NEAR THE OLD FRONT LINE NORTH OF VERDUN

Another member of the commission for reconstruction and relief was Charles S. McDonald, '99, President of the Utah Association of Architects. McDonald, unfortunately, was never able to take up the work, for shortly after his arrival in France he fell ill; meningitis developed, and he died, on April 14, at Neuilly.

A certain amount of reconstruction and relief work was carried on by separate college units. One of these, the first from a woman's college, was the Smith College Relief Unit, which came over in August, 1917, and was later absorbed by the Red Cross. Doctor Alice W. Tallant, '98, was a member of this unit, and served as its director for some four and a half months in 1917, while occupied in the work of civilian relief for the people in the devastated regions in the department of the Somme. Later on, she returned to the United States, but once more went to France in May, 1918, when she was stationed in the receiving ward of a French military hospital some twenty miles from Château-Thierry. Here on the nights of July 15 and 16, during the crisis of the last great German offensive, she watched day and night, and aided in the disposition of the wounded even during heavy aerial bombardment. She received the Croix de Guerre, and also the honorary rank of aide-major, première classe, that is to say, a first lieutenant in the French hospital service. Later on, she did much civilian work, giving medical aid and directing relief in no fewer than one hundred and thirty villages in the partially devastated regions between the Marne and the Aisne.

Doctor Anna M. Gove, '91, was also connected with this unit in the summer of 1919, as medical director, having worked for the previous year with the Department of Civilian Relief of the American Red Cross.

Relief work was, of course, by no means confined to France. Guy Lowell, '94, who was serving as a major in the Red Cross did valuable work in Italy, and was decorated for his courage in evacuating wounded during an air raid. Gorham P. Stevens, '99, held the rank of captain, was engaged on the permanent relief work, and was for some time the only Red Cross official in that country. This was in the month of October, 1917, at about the time of the great Italian military disaster, and much of the work of organizing immediate relief for the Italian refugees fell upon Stevens' shoulders. Later on, he did

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work in Greece, and on the Island of Mitylene, altogether handling about six hundred thousand dollars in cash, and three hundred thousand more in supplies. Ben E. Holden, '94, also a captain in the Red Cross, and later a major, carried on work in southern France, and in Czecho-Slovakia, while Major Robert B. Wallace, who classifies himself either as '98 or '99, handled work in the Balkan States after the armistice.

Some of the most interesting adventures appear to have befallen those who worked in the Near East. Alfred D. F. Hamlin, '78, who during the war had been an instructor of the Columbia University Students' Army Training Corps, shortly after its close was sent to Asia Minor to study the condition of the devastated regions inhabited by Greeks, particularly the regions about Smyrna, Trebizond, and the Marmora Islands. He apparently was lucky, for he states that at one time or another he just managed to miss a colossal explosion, the robbery of a treasure ship by pirates, and a massacre of the Greeks by the Turks. He apparently performed valuable services in helping Greeks, Armenians, and Servian refugees, who he states were in many cases in great suffering, for King Alexander of Servia conferred upon him the Cross of George I.

Of those working in this district, by far the most romantic story was that of James A. Patch, '00. Unfortunately, we have no detailed account of his adventures, but his mere statement of the work performed, which follows, speaks for itself. "At the opening of the World War, I was, in addition to my regular college duties, vice-chairman of the Beirut Chapter of the American Red Cross, the first of the foreign chapters of that organization. I was actively engaged in organizing first, a civilian relief, and second, a hospital unit for service with the Ottoman Army.

"Our civilian relief continued, with some interruptions, throughout the whole period of the war. At the start, when America as a neutral country was giving medical and civilian aid to both sides, our Beirut chapter was authorized by Washington Headquarters and by the governments concerned, to send a medical unit for aid to Turkish sick and wounded soldiers returning from the first Suez Canal expedition. I was in charge of the preparation of the equipment of this unit, which was later pronounced by both Turkish and German officers to be the most complete hospital unit at the time with the Turkish army, and a model of its kind.

"In 1916, I was elected chairman of the Beirut Chapter. As chairman of the executive committee, I directed its civilian relief. Our committee, working with the Lebanon government, made a census of the needy and inaugurated a system of government distribution of aid. This work was brought to a sudden close by the breaking off of diplomatic relations with the United States.

"During succeeding months we conducted American Red Cross relief, unauthorized by the Turkish government and often secretly, because of government opposition. When finally the American Red Cross was forbidden to work, I became secretary of a secret group, who still attempted to mitigate the terrible conditions of starvation when thirty to forty per cent of the population died."

Before passing to other civilian activities, it may be well to say a word regarding the work of the Red Cross. When the medical supply and sanitary service of the army has been brought to a really efficient point, there may be room for argument as to whether a Red Cross organization is needed to care for the wounded. There is one field of activity, however, in which the Red Cross never has had and probably never will have, a rival or any adequate substitute, namely, the care of refugees.

One of the most terrible aspects of war is the fate of the non-combatant, trapped within the zones of combat, as those Tech men who commanded or directed units of the allied artillery in the fighting of November 9, 10, and 11, 1918, will well remember. The towns which formed the German strong points were full of friendly civilians, yet to spare the lives of these meant the loss of many among the attacking troops, and probable defeat. Combatant forces cannot do anything for the civilian population, except to destroy everything which they hold dear, and leave their homes and fields a wilderness. Under such conditions, some organization separate from the army is absolutely essential, and the work carried on by the American Red Cross in this field during the recent war is one of the brightest pages in American history. It is therefore with pleasure that Tech men can

YOUNG MEN'S CHRISTIAN ASSOCIATION

view the work of their comrades in this line of endeavor, particularly as so much of it lay directly in that class of work which proved most effective.

YOUNG MEN'S CHRISTIAN ASSOCIATION

Another of the great American societies which took so prominent a part in auxiliary war activities was the Young Men's Christian Association. The great educational campaign in the American Expeditionary Forces has already been mentioned.

Of equal importance with the educational campaign was the organization which provided entertainment for the members of the American Expeditionary Forces, particularly during the period following the armistice when the men had comparatively little in the way of military duties to take their minds off the discomforts of their surroundings and general homesickness.

Perhaps the most successful means of entertainment was the circuit of amateur theatricals in which men from the various units visited others and performed for their amusement, but by far the most popular diversion, when obtainable, was moving pictures. The arrangements for showing moving pictures to the Army and Navy both at home and abroad were made by the Community Motion Picture Bureau of the Young Men's Christian Association and of this bureau Elmo C. Lowe, '05, was the overseas director. He had charge of the motion pictures in the American Expeditionary Forces, where he was responsible for supplying equipment to the various Young Men's Christian Association huts and canteens in France, England, and Italy, and later in the Occupied Territory of Germany. In addition he was charged with obtaining pictures of action at the front and elsewhere which were combined and shown both at home and abroad under the title of the "Overseas Weekly."

How great was the service rendered by these pictures can only be realized by those who enjoyed the entertainment provided. Perhaps its greatest function was that of keeping the men abroad in touch with events at home and vice versa.

Another branch of the work was the Young Men's Christian Association canteen



THE DEVASTATED AREA AROUND VERDUN

TECHNOLOGY'S WAR RECORD

service. In this connection it should be noted that this service was much more extensive than that of any other society, and that to it, indeed, were assigned many duties which should have fallen normally upon the Service of Supply of the United States Army. Among those Tech "men" who were engaged in this work, we may first mention one who is not a man at all, namely, Abby W. Christensen, '17. Of her work Miss Christensen says: "I organized picnics, I made 13,000 doughnuts, and I danced hundreds of miles with boys who said it was the first dance they'd had in anywhere from six months to two years." Most of her work was in the big hotel for enlisted men at Nancy, where she furnished the rooms, engaged the French help, installed the stoves, rustled for provisions, and kept things going generally, particularly handing out hot chocolate and coffee, bread and jam and cookies, and running the hotel office and check room. She tells one story which illustrates the usefulness of such recreation rooms. "Before we were nearly ready, we opened up for the sake of a party of 'Tommies' and one 'Jock' under charge of a British Red Cross man, who were coming down from a German prison camp on their way home, all sick in mind and body. There was a Victor in the canteen and some one put on a Harry Lauder record for the sake of the little Scot, who was huddling over the fire quite apathetic and oblivious to the world. It waked him up all right, and his smile was fun to see. I think it was his first realization that he was going back to Scotland."

The activities of the canteen personnel varied greatly with the time and place, but they have been very briefly and accurately described by Harold H. Gould, '04, engaged in motor transportation work for the Association, who says: "I ran: automobiles, cocoa boilers, field meets, garages, taxi service, canteens, sight-seeing tours, boxing matches, and into debt. I got: into England, France, Germany and Italy, fine physical condition, a lot of hot water, and the Tech overseas bureau, where one always found a warm welcome that sure did a man good."

Perhaps one of the most interesting experiences was that of W. H. Butler, '99. Butler, as a director of Theodore Butler, Ltd., of London, for some time during the early years of the war was engaged in obtaining American machine-tools for the British and other allied governments. At the outbreak of the war he became one of the first volunteer workers in the American Eagle Hut, and remained there until it closed. This "hut," which in fact was a large Young Men's Christian Association canteen, was opened to cater to all soldiers and sailors of the Allies, but with the arrival of the Americans it soon became an almost strictly American institution. It was the only place in London, and almost the only place in the whole continent of Europe, where the words, soda-water, ice cream, buckwheat cakes and maple syrup were understood. American dishes including pumpkin pie, sweet potatoes, corn bread, and corn fritters, were served whenever possible; the menu made the average American soldier's mouth water when he heard it mentioned. Indeed, so entrancing were the delights of this place that many an American soldier has returned from a trip to London and has admitted that he really knows very little regarding the place, as he has never left the Eagle Hut.

It may be interesting to Tech men to know the impression made upon Butler and his companions, among whom were members of the British nobility, who served these lads of the American Army and Navy. One of them says: "We Americans living in London were apprehensive, as we awaited their coming. Europe had been in the throes of a desperate conflict for three years. The long strain had told on the feelings and temper of the people here. Would our boys come over with the bluster and brag that they so widely believed to be characteristic of our nation? Would they announce their arrival in the Old World with the boast: 'Now we're going to show you how to do it?' Our apprehensions were without foundation. How proud we were of our boys and of our country! The great majority were modest, sober, and temperate in their attitude and expressions. They seemed to realize the seriousness of their task, and their great eagerness was to learn how they could best do it. Such men it was a pleasure to serve."

Two of our men may be noted as being somewhat more mature than the average Young Men's Christian Association worker, namely Ernest S. Tappan, '91, who served with the Union Franco-American, and Charles W. Eaton, '85, of the Tech Bureau at Paris. Eaton was determined that he would take part in the conflict and that he would get abroad.

YOUNG MEN'S CHRISTIAN ASSOCIATION

He was considered too old for the Army or Navy, and even the Young Men's Christian Association endeavored to keep him on duty in the United States, but he finally succeeded in getting across as a director, being assigned work in Paris. Here, as we have already seen, he was prominent in all activities of the Tech Bureau, and was a veritable good angel to all Tech men in misfortune or financial distress.

Perhaps the most unique work performed by any of our men in the Young Men's Christian Association work on the western front was that of W. Lock Wei, '18, who served as an overseas secretary for the American Young Men's Christian Association in England and later at Rouen, France. He was charged with the Young Men's Christian Association work among the Chinese laborers, in particular looking after their athletic work. Early in 1919 Wei was transferred to the Educational Department and until April was busy instructing members of the Royal Engineers in athletics and electricity.



IN THE PATH OF THE ARGONNE OFFENSIVE. TYPICAL SCENERY BETWEEN THE AIRE AND THE MEUSE

Adventure was seldom the lot of the Young Men's Christian Association secretary, but two of our men saw service of a most unusual nature. We have already described the adventures of Lieutenant J. Barton Nealey, '11, fighting against the Bolsheviki, and it may be interesting to record some incidents in the career of E. W. Bonta, '07, who at a little earlier stage dwelt and worked among these people. At the time the United States entered the war he set out with a Young Men's Christian Association unit for Russia, working in Nijni Novgorod, Moscow, and Petrograd. The work of the unit was as usual to bring cheer and comfort to the hearts of the Russian soldiers; in addition no opportunity was lost of impressing upon them the friendship of the United States, and the aid which would soon be forthcoming from that quarter. Speaking of his work during this period, Bonta says: "It was discouraging; they so often failed to grasp what we were and seemed unresponsive, many of them, poor souls. So many were 'from the mind gone out,' as the Russians say. Of course they couldn't understand. Others, particularly among the officers, understood very well and many times there were tears with their smiles when they thanked us.

TECHNOLOGY'S WAR RECORD

"Then, of course, I could not use the language, and I was never sure that our Russian secretaries were painting us right. But the greatest damper on my enthusiasm in Moscow was the food situation. What the men needed was food, and food we could not get. It was hard giving out cigarettes made of hay, and letter paper, and games, when you saw them watching with hungry eyes for a meager bowl of soup and a dish of porridge. Another thing that made it hard for me in Moscow was the feeling that ours was a 'paternal' sort of work. I had looked forward to a world where there no longer would be one class that gave and another that received, but where all would be 'tovarishchi' together. That is what I thought we had found in Russia. I have since learned differently. That cry about condescension was nothing after all but the cry of the under dog, and, when he got on top, was there equality? On the contrary, he was only too glad of the chance to do a little condescending himself. His idea of getting equal was 'getting even.' I am afraid that happy state is the work of a generation more highly civilized than yours and mine."

Later on, after the Bolsheviks got control, matters became more difficult, and when the United States determined to send troops to Archangel and Murmansk, further work became impossible. The position of Americans at this time was rather delicate. However, all escaped without serious injury, although the margin of safety was at times unpleasantly small. Bonta says: "I found the consul, a revolver on his desk, destroying his code books and otherwise preparing to turn his affairs over to the Norwegian consulate. Word from Moscow informed us that Mr. Poole had turned over his consulate and applied for a train to take all Americans out of Soviet Russia. I had come as consular courier from Moscow to Petrograd, with orders to go on to Vologda; a few Americans were still there and we could see it through together.

"I established myself and baggage in a 'wagon-lits' and the train pulled out of the Nikolayevski station. Sharing the compartment with me was a rather flashy and dirty young man, reading a newspaper that would mark him as a Bolshevik. He looked across his paper with a sly leer and indicated a short item from Vologda. 'Commisar Khedrov orders all foreigners to leave Vologda at once. Any found in the town after twenty-four hours will be imprisoned!' The finger moved across the page and marked this item: 'Americans with the forces occupying Archangel make war on the armies of the Soviet' and then to this: 'In view of the present opposition to the authority of the Soviet, TT. Lenine and Trotsky announce a reign of terror. All prisoners taken will be held as hostages and for every Red Guard killed by enemies of the Republic, by the forces of any other party or government, ten hostages of that party or government will be put to death.' He was a pleasant travelling companion, this young man!

"The news from Vologda was three days old. The last foreigner was out of there forty-eight hours since! My permit read to Vologda. Without a permit to Petrograd it would be as difficult to return to that city as to storm Verdun! My friends from Vologda were undoubtedly arrived in Moscow by this time. In Moscow they thought me safe in Petrograd. In Petrograd they thought me safe in Vologda. In Vologda, Petrograd, or Moscow, the American flag no longer flew over government offices and afforded us no further protection.

"When the young Bolshevik went out to supper, I hustled open my baggage, fished out and destroyed every scrap of literature that might brand me as counter-revolutionary — letters, articles, government credentials, even my complete little diary, with illustrations, that I had kept faithfully ever since leaving England, all torn to bits and strewn along the track for versts. Then I selected from my wardrobe the shoes and clothing I thought would prove most serviceable for general utility and prison wear (they might not shoot me at once) and got into them.

"Arrived in Vologda, I pulled myself together, took a deep breath, and marched shakily out to meet my captors-to-be. Everywhere was bustle and activity, swarms of peasants toting unbelievably big bundles in and out of trains — but no captors.

"It was nightfall and no train to Moscow until morning. I dared not venture into the town, but wandered instead into the third-class waiting room and as it was still many

OTHER RELIEF ORGANIZATIONS

hours to morning, I determined to lose myself in sleep, when something pulled at my leg and a voice said to come with him. Taken at last!

"So much depended upon the man into whose hands you fell. An American arrested in Vologda just after he languished in jail for weeks and nearly died of under-nourishment and illness before he was discovered by another American who had kept the good will of the Bolsheviki. My captor was the kindly sort, and I suffered no worse fate than being hustled over to the commissar, who gave out travelling permits. Then I was left to wait my turn in a line of a hundred and fifty, for Russia today, in spite of rigorous restrictions, is the travelingest country in the world. As I waited I could read the advices on the walls 'No permits granted to Moscow.—Positively no one permitted on lines north toward Archangel.—No one allowed to travel into Petrograd. It is forbidden to go to Nijny.' And no foreigner allowed to remain in Vologda! I had always heard they had a sense of humor—these Bolsheviki.

"The line in front of me grew shorter, and the man directly ahead reached the desk. 'Please may I go into Moscow?' 'You may not!' 'Why may I not?' 'It is written on the wall, you may not.' A burly Red Guard took the suppliant by the coat collar and set him in the street—'Where to, comrade?' asked the commissar. 'Moscow,' said I, and only the desk kept him from seeing my knees beating together. His eyes narrowed. I wasn't a Russian. No. (I had never before wished I was.) What was I then. English? American! And I wanted to go to Moscow. Yes! The pen scratches across the paper, a permit was thrust at me, and I read across the face, 'Moscow.' 'Next!' called the commissar.

"I hate to write the rest of this. As I hurried back toward the station to catch the Maxim Gorky, a carriage rolled past me and a perfectly good American voice shouted my name! I looked to see an American man, and if you please, an American girl, stopping their cab, and beckoning to me. They were from our special train [which was to carry the Americans out of Russia] which had pulled into the yard the afternoon before and was going out toward Moscow that noon. It had stood in the yards all the night I lay under a bench in the waiting room."

OTHER RELIEF ORGANIZATIONS

In addition to the various activities already described, there was another relief organization in which Tech men did most humanitarian work in the early days of the war and continued to do so throughout hostilities, although it was later managed chiefly through Spanish agencies. This organization was the Belgian Relief Commission. One of the most important positions under this commission was held by William B. Poland, '90. In 1915 he became interested in the Belgian Relief Commission, and in the spring of 1916 went abroad under Herbert C. Hoover, where he became charged with the administration of relief in occupied northern France. Altogether, he had about 10,000,000 people under his care. His position was somewhat delicate, and the work was fraught with great difficulties. Nevertheless, it was discharged with great courage and ability. In particular, Poland showed the stuff that was in him, at the time of the deportations from Northern France, when he denounced the whole proceeding as an outrage against civilization. His act required no small degree of courage and subsequently won for him the rank of commander of the Legion of Honor. So well did he fill his position that when Hoover became Food Director of the United States, Poland became Food Director of Europe, and from that time has directed the distribution of American food throughout the continent, a work the importance of which cannot be overestimated.

Herbert Jaques, '77, was also associated with the Belgian Relief, and later became chairman of the Servian Relief Commission and served as chairman of the executive committee of the National Allied Bazaar held in Boston in December, 1916. He put practically all of his time and energy into this work, and it was largely due to him that this bazaar proved so successful. The strain, however, was excessive, and on the day following the closing of the bazaar he died from heart failure. Plans have been made to endow a ward for the treatment of injuries to the eye in one of the hospitals in London or Paris as a memorial.

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Work of a very similar nature in raising funds for the Belgian Relief was performed by Joseph S. Emerson, '74. In speaking of it he remarks, "My age, I am now seventy-six years of age, prevented me from undertaking active work I should have chosen." But he did what he could. Mrs. Emerson, it seems, had passed her girlhood in Belgium, and she at once undertook to raise funds for the relief work. Aided by Mr. Emerson, she raised \$48,366. Altogether, 370 Belgian soldiers were aided by them, and 138 Belgian babies, the latter being helped chiefly by food and by nearly two tons of clothing forwarded by parcel post.

CHAPTER IX

OUR MEN IN CIVILIAN GOVERNMENT SERVICE

Even in telling the story of Technology's men in military and naval service of the United States, it will be noted that the names of many civilians have been mentioned, for the distinction between the civilian and the soldier is at best but an arbitrary one. War is a test. It is an ordeal by battle to determine which of two groups of men is best fitted to survive. It is a struggle in which the total ability of each nation, its good qualities and its bad qualities, is thrown into the balance; the victor will be that nation, or group of nations, which possesses in the highest degree, not only the qualities of courage and physique, but also knowledge, imagination, patience and industry. This has been particularly true during the recent war, for never before were the services of civilians and civilian organizations utilized to so great an extent, and never did civilian effort contribute so greatly toward the efficiency of the fighting machine.

That this was the case is due largely to a number of civilian boards and committees, some authorized by law, some appointed by executive order, and some acting as volunteers. Among the first of these to be formed in the United States was the Naval Consulting Board of which Thomas A. Edison was chairman. One of Edison's first acts was to suggest the formation of an advisory council consisting of two members from each of the great American engineering societies. Twenty men were selected, among whom were two Tech men, W. R. Whitney, '90, representing the American Chemical Society, and Lawrence Addicks, '99, representing the American Electro-Chemical Society.

The Advisory Board realized at once that the only way to insure to our Navy the best weapons and processes was to provide for a well co-ordinated scheme of research and production. Arrangements were accordingly made for an industrial census of the United States to determine where factories were located which might be of value to the Navy Department, should there be an outbreak of hostilities. A special organization was arranged for each state to carry on this work, and a number of Tech men connected with it, notably, Thomas W. Fry, '85, and Hugh K. Moore, '97, both of New Hampshire, Farley Osgood, '97, for New Jersey, G. H. Garcelon, '03, for Pennsylvania, Howard T. Graber, '03, for Michigan, and G. M. Bartlett, '05, of New Jersey. Moore as chief chemist and chemical engineer of the Brown Company later did much work in the manufacture of chloroform, and of sulphur chloride for use in the production of mustard gas. He was also a member of the Chemical Engineering Committee of the Council of National Defense, and interested various firms in the production of toxic gas, and in the manufacture of paper powder-containers.

At the date of its organization the chief mission of the Naval Consulting Board was that of stimulating invention and developing devices which appeared useful. Several of our men took an active part in this work. In June, 1917, Frederick K. Copeland, '76, became chairman of the Advisory Committee and took charge of the examination and classification of war inventions for all territory west of Pittsburgh. He was also active in many other committees and movements of an official and semi-official nature. Francis C. Green, '95, was engaged in the same work. His duty was to examine all letters sent to the Navy Department which suggested new methods or devices. Altogether about forty thousand such letters were received. Of these Green took care of a large portion, in one day handling as many as two hundred. Every letter was answered and where the party making the suggestion was not satisfied with the reply, he was interviewed by a representative of the Board. Green was later charged with this duty. Any one who has ever endeavored to convince an inventor of the uselessness of his invention will realize the difficulty of this work and the tact and patience required. The work of Doctor Whitney in connection with anti-submarine devices has already been mentioned (see page 277).

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Henry M. Howe, '71, was engaged in investigating the erosion of guns for the Navy, and a number of others worked on problems of most diverse natures.

The Naval Consulting Board was not the only organization which undertook to provide for invention and research. The entire country was becoming interested in the European struggle and many independent movements were being set on foot; one of the most important was the National Research Council.

The formation of this Council appears to have been due chiefly to Doctor George E. Hale, '92, who immediately after the sinking of the "Lusitania" proposed to the President of the National Academy of Sciences that the services of the Academy be offered to the United States for the purpose of organizing scientific research agencies of the country towards national preparedness. After the attack on the "Sussex" the proposal was repeated, and on April 19, 1916, was approved. The offer was accepted by President Wilson on April 26 and an organizing committee was immediately appointed. Two Technicians served on this committee, Doctor George E. Hale, '90, Chairman, and Doctor Arthur A. Noyes, '86.

Committees were at once appointed to handle the most pressing problems which confronted the Government. Among these was that of nitrate supply. Early in 1915 the Army War College had called attention to the fact that the supply of nitrates existing in the United States was insufficient for our needs and had suggested that a reserve should be accumulated. The necessary storehouses would have been enormous and the nitrates difficult to obtain at that time from the usual sources. As a result the War Department had become much interested in processes for obtaining nitrates from the nitrogen of the air and one of the first requests made of the new council was for a report upon various methods for fixing atmospheric nitrogen. The committee appointed, which was known as the Nitrate Committee, included Doctor W. R. Whitney, '90, Doctor Elihu Thomson of the Corporation, and Doctor A. A. Noyes, '86, the latter being appointed chairman of the committee. This committee made an exhaustive study of the nitrate situation and submitted a number of reports covering its various phases, including the deposits of the mineral nitrates in the United States, the possibility of obtaining nitrates from distillation of coal and finally a discussion of the various processes in use for obtaining nitrogen from the air. This last work which was handled chiefly by Doctor Noyes included a discussion of the various methods and comparative cost and efficiency. None of the processes, as a matter of fact, at that date were entirely satisfactory and all members of the committee continued to work upon the problem of improving them.

Doctor Whitney carried on his experiments in the General Electric laboratories at Schenectady, while Doctor Thomson worked in the laboratories of the same company at Lynn. Doctor Thomson noticed quite early in the investigation that the most difficult problem seemed to be that of absorbing the nitrogen oxides and after long investigation has finally taken out a patent upon a process which accomplishes this result most efficiently.

Under the National Defense Act in June, 1916, some \$20,000,000 was appropriated for further investigation and for the erection of nitrate plants to produce nitrates for explosives in time of war and fertilizers in time of peace.

The Nitrates Committee was now enlarged and became known as the Nitrate Supply Committee, Doctor Noyes still remaining as chairman. It was the duty of this committee to design and advise regarding the construction of the plants provided for by the Act and the construction of such a plant using the synthetic ammonia process was advised, the work being carried out under direction of the Ordnance Department with the Committee on Nitrate Supply and the experts of the General Chemical Company acting as consulting engineers. This process, however, had not been brought to the necessary degree of perfection and the plant proved a failure.

Up to this point there had been no real need of a nitrate plant since it had been possible to import nitrates from Chile, but during the summer of 1917 the United States made an agreement with the Allies by which it was to provide immense quantities of explosives.

In the meanwhile the quantity of available shipping was decreasing and there seemed a possibility that the nitrates might be cut off. Accordingly, in the fall of 1917

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the United States Ordnance Department decided to erect three additional plants, one at Muscle Shoals, Alabama, and the other two at Toledo and Cincinnati, Ohio, which were designed to furnish a supply of nitrates equal to the usual importation from Chile.

At the same time the Nitrates Division of the Ordnance Department was formed and Doctor Noyes, with a number of other members of his committee, became a consulting engineer for this division.

As to the work of the Tech men who served on this committee it is perhaps proper to note that at the time of their appointment they were faced with a problem which had not been solved, for at that date nitrates had not been produced from atmospheric nitrogen upon a commercial basis anywhere save in Norway, where conditions were most exceptional. Thanks largely to investigations directed by them the process has been perfected



(General Electric Company)

FRACTIONATING ROOM AT NITRATE PLANT No. 2, MUSCLE SHOALS, ALABAMA

to a point where it now appears that fertilizers can be manufactured on a commercial basis in the United States.

It is perhaps of interest to note in this connection that David St. Pierre Gaillard, '11, performed important work in the Nitrate Division, entering it as a first lieutenant, and rising to the rank of major, and at the present date is executive and general assistant to the chief of the division.

Thousands of similar problems were presented to the National Research Council, and committees were appointed to solve them. In almost every case progress was made which resulted in some governmental department taking over the entire committee and its work, with the result that it is impossible to separate the work of the governmental body from that of the committee.

In the summer of 1916, Doctor Hale went abroad to study conditions at the front, and to determine just how American scientists could best aid in case of an outbreak of hostilities. He was much impressed with what had been accomplished by European scientists, particularly the work of Doctor Carrel in the treatment of septic wounds; he returned

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fully convinced that war between Germany and the United States was imminent, and that scientific men could play a great part in it. Upon his return he wrote a number of articles for various magazines bringing out this point, and it was very largely his address to the students and staff which launched the preparedness campaign at Technology.

It would appear that while abroad he conceived the idea of an international, or more accurately, an inter-allied research council, which should provide for the co-operation of scientists in all the countries opposing Germany, should the United States be forced to enter the struggle. As foreign secretary of the National Academy, Doctor Hale for some years had been in close touch with international scientific organizations. In the spring of 1918, he submitted to the Council of the National Academy a "Suggestion for the International Organization of Science and Research." The suggestion was adopted and Doctor Hale, as chairman of the American delegation, was requested to present it at a conference of National Academies called by the Royal Society, and held in London in October, 1918. A plan was submitted for the organization of an international research council to be composed of representatives from the various countries which had sent delegates, and for the formation of other councils which would subsequently be represented in France, Italy, Belgium and Japan. This council was not organized in time to take any active part in the war, and its history should not therefore form a part of this volume. It seems, however, that the policy adopted of close organization and co-operation between the greatest scientists of the free nations of the world should perhaps go at least as far toward improving the world conditions and removing the causes of international strife as any of the diplomatic councils and leagues which have been proposed.

In addition to Doctor Hale, a great number of our men took part in the work of the Council, of whom a few may be mentioned as typical examples. Professor James L. Howe, '06, had the honor of himself constituting the Special Committee on Platinum. Professor E. W. Washburn, '05, became a delegate to the International Chemical Union and the International Research Council during its meetings at London and Brussels, 1919. Henry D. Hibbard, '77, acted as chairman of the committee dealing with the non-metallic impurities in steel, a work which still continues. Henry M. Howe, '71, whose work has already been mentioned in connection with the Naval Consulting Board, at the request of the Ordnance Department, conducted a prolonged investigation on material suitable for helmets and body armor. He also acted as chairman of the Engineering Division of the National Research Council, and subsequently became a scientific attaché at the American Embassy at Paris. Lucius K. Russell, '86, undertook the classification of chemists for the Government, more than 5,000 records being cataloged by him. David Wesson, '83, served on the committee dealing with fats and oils. John Ripley Freeman, '76, was a member of the National Research Council, and subsequently became chairman of the National Advisory Committee on Aeronautics, while Leonard T. Troland, '12, in addition to working at the Naval Experimental Station at New London, was also a member of the sub-committee on vision, and psychological problems relating to aviation. Harold D. Mitchell, '12, was assistant to the chairman of the sub-committee on rubber and allied substances, working out tire and tube specifications. Charles W. Hargitt, '86, and W. F. M. Goss, '79, worked as members of local committees. In addition, Goss served on a committee of the American Society of Mechanical Engineers charged with securing co-operation between mechanical engineers and government agencies, and also continued his regular work in the manufacture of freight cars on government orders. Professor Hargitt was engaged in training members of the Syracuse University unit of the Students' Army Training Corps groups, and Mitchell was engaged in the manufacture of tires and tubes for the Government.

For some time previous to the declaration of war the idea of industrial preparedness had been gaining force in the United States, but no organization had been legally constituted to put such preparation on a practical basis until the passage of the National Defense Act, better known as the Hay Bill, on August 26, 1916, which created a Council of National Defense consisting of members of the cabinet and an advisory board composed of experts representing the Nation's professional societies. The creation of this council appears to have been largely due to Doctor Hollis Godfrey, '98. As early as 1906, after hearing Sir Henry Campbell-Bannerman, at that time Prime Minister to England, discussing the

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possibility of war with Germany, Godfrey conceived the idea of a council of defense made up of leaders of military activities and industry. From this time on Godfrey studied the various councils for national defense which were being formed in Germany, France and Spain, with the object of proposing a similar council for the United States.

In 1915 Doctor Godfrey placed his scheme before Major General Leonard Wood, and requested his assistance in perfecting it. General Wood acquiesced, and the scheme was brought into quite definite shape. Subsequently, Godfrey conferred with Secretary of War Garrison, Ex-Secretary of War Root, Senator Chamberlain and Congressmen Rollin Sanford and James Hay, with the result that when Congressman Hay presented his bill it contained provision for the creation of the Council of National Defense composed of the Secretaries of War, Navy, Interior, Commerce, Labor and Agriculture, and of an advisory board consisting of seven men, chairmen of seven committees composed of experts in medicine and sanitation; labor, including health and welfare; transportation and communication; science, research and education; raw materials; munitions and general supplies. Godfrey was himself chosen chairman of the Committee on Science, Research and Engineering Education.

One of the first pieces of work taken up by the Council was that of securing co-operation with various state councils of defense, and the extension of the census of industrial preparedness begun by the Naval Consulting Board. In this work a number of Tech men and women were engaged, including, — James H. Hutchings, '83, Isabel F. Hyams, '88, Alexander Jarecki, '88, Ellison C. Means, '88, R. W. Wight, '01, Arthur H. Langley, '04, and Robert A. Leshner, '13, who served as office manager of the Section of Co-operation for the Various States.

A great deal of valuable work was done by the Council in taking inventory of industrial enterprises, and recommendations made by the Advisory Board played a decisive part in the reorganization of the government departments at the opening of the war, and securing the co-operation of civilian effort generally. Through it the Government found the right men or the right firms to do its work, and as a result an immense amount of time and energy were saved. In this connection it is worth noting that the work of the Com-



(U. S. Official)

THE HEAVY PONTOON BRIDGE ACROSS THE MEUSE CANAL AT BRIEULLES. ONE OF THOSE CONSTRUCTED BY FRED D. MENDENHALL, '14

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mittee on Mobilization, appointed by Technology, which did such excellent work in card cataloging the resources of the Institute, took up this work largely at the solicitation of Godfrey. Quite independently of the Institute movement, Calvin W. Rice, '90, undertook to catalogue and maintain a bureau of information regarding professional men and did actually arrange a catalogue covering more than 10,000 engineers, specialists and men of science, classified under some 350 headings, with all necessary information regarding them, including the languages in which they were proficient.

As has already been stated, the Advisory Board of the Council of National Defense was composed of seven men, each acting as the chairman of the committee on some special subject; each of these committees had numerous members, and sub-committees, and upon these a goodly number of Tech men served in various capacities. Van Rensselaer Lansingh, '98, acted as assistant to Doctor Godfrey; later while serving as director of the Technology Club at Paris, and business manager of the American University Union, he collected information for the Council regarding foreign practice in acetylene welding at the front. Bradley Stoughton, '96, served first as a member of the General Engineering Committee, later as head of the Metallurgical Division of the Engineering Division, and finally as vice-chairman of the Engineering Division of the Council. Professor Daniel D. Jackson, '93, served as a member of the Committee on Water Supply, and was also engaged in military work, for he served as dean of the School of Military Photography of the Signal Corps, as a member of a committee of Military Training Camps Association, and later as a member of the Staff of the School of Explosives of the Ordnance Department at Washington. J. Randolph Coolidge, Jr., '92, served as regional director of the Highways Transport Committee for New England. A. Farwell Bemis, '93, was a member of the committees dealing with labor, purchase of cotton goods, and production engineering (Cotton Goods Section). Theodore W. Robinson, '84, was a member of the Committee on Housing, and also served as chairman of his district craft board. E. L. Pierce, '86, was a member of the Committee on Coal Production, and also did work of a most important nature in connection with the chemical industry (see page 363).

R. S. Whiting, '96, was a member of the Committee on Lumber. Among the matters referred to this committee was that of obtaining the necessary lumber to provide for an increase in capacity of the cantonments from 26,000 to 40,000 men, and it was due in part to Whiting that a very considerable economy was effected by the re-design of the barracks. James F. McElwain, '97, (see page 324) served as chairman of the Committee of Shoe and Leather Industries.

Mrs. Stanley McCormick (Katherine Dexter, '04) was a member of the Woman's Committee, and chairman of the Committee of Food Production and Home Economics. Her special work was that of forming sub-committees in every state, and in supplying these sub-committees with information and material for guidance in activities dealing with agriculture and domestic economy. These committees were, technically speaking, independent of the Food Administration, but as the work was more or less identical in many cases they were merged.

John C. Hawley, '93, G. E. Merryweather, '96, and George W. Sherman, '94, all served as members of various committees of the Council; those of which Hawley and Merryweather were members were ultimately absorbed by the War Industries Board (see page 310).

Indeed, the greater portion of these committees were subsequently taken into the government services, or grew into special government boards or departments. Another example of this is furnished by the record of Leonard Metcalf, '92, originally a member of the Committee on Emergency Construction, who assisted General Littell in establishing the Construction Division, and who aided in selecting personnel, making out forms of contract, providing lists of contractors, selecting cantonment sites, and awarding contracts for the cantonments erected during the summer of 1918 for the new National Army. This committee is an excellent example of most of those established by the Council of National Defense. The members of it were civilians. They were men who had made their mark in civil life, and whose decisions upon certain matters could not be questioned. They determined policies, and gave the military authorities the necessary moral backing to carry

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these policies through. This was necessary, for in the case of the cantonments, and many other projects, work had to be started before it was possible to obtain the necessary funds. It was of the greatest help for the military authorities to have the backing of a committee of well-known civilian experts which would insure them against criticism or subsequent failure of appropriations.

The work of this committee is also typical in that it was absorbed into a regular department of the Government, namely, the Construction Division, United States Army (see page 315).

Another of our men who had much the same experience was C. H. Crawford, '09. Previous to the war Crawford had been engaged in railroad work. In November, 1917, he became a member of the Storage Committee of the Council of National Defense. It was largely due to the recommendations of this committee that the office of Purchase, Storage and Traffic was created, and General Goethals appointed its chief. In this case Crawford not only passed directly into government service, but became a major in the Corps of Engineers, being subsequently promoted to the rank of lieutenant-colonel.

PURCHASE, STORAGE AND TRAFFIC

At the outbreak of war, the situation faced by the United States may well be described as desperate. The supply arrangements of the Army had been determined entirely in accordance with peace-time conditions. The methods for letting contracts were prescribed by laws, and these laws had been passed by the representatives of the people of the United States, not with the intention of providing the most efficient means of obtaining equipment, but rather with the object of dividing the contracts as to locality and insuring equality between the bidders. The personnel of the departments, both civilian and military, had long been trained in the prescribed method of procedure, and the size of the contracts previously handled was small as compared with those now to be undertaken. Moreover, there seemed every chance that should the old methods of competitive bidding be resorted to, various departments would bid against each other, and that in addition, transportation and other facilities might be so seriously disarranged as to delay the entire program. Under these conditions, upon the suggestion of the Council of National Defense, a new office was created, that of Purchase, Storage and Traffic, and Major-General Goethals, an army officer well known for his ability as an organizer, was appointed director, a position which he held until the spring of 1919 when he was succeeded by Major-General Harry L. Rogers, '89.

General Goethals' chief assistant was Gerard Swope, '95. Regarding Mr. Swope's work we have comparatively little detailed information. Some idea of it may, however, be gained by a consideration of the work assigned him. He was charged with the practical reorganization of the purchasing system of the United States Army which at this time was handling between four and five times as much business as the entire Government is normally called upon to take care of. Not only this but he was called upon to organize a system by which the raw materials should be transported to the points of manufacture and the finished products should be dispatched to proper terminals and stored or shipped overseas. The program of the War Department on this date called for an expenditure of no less than \$7,864,240.483.95. This money was expended through the organization worked out by Swope. The materials bought with it were transported in accordance with the regulations laid by him and approved by General Goethals. Where it was necessary storage depots and terminals were constructed in accordance with his recommendations.

How vital was his work to the nation can best be judged from his citation for the Distinguished Service Medal, which reads: "As one of the principal advisers and assistants to the Director of Purchase, Storage and Traffic he accomplished the task of working out the detailed plan for bringing under one head the direction and supervision of procurement, storage and issue of all commodities, and articles of equipment and supply needed for the Army. It was due to his foresight, ability, energy and loyal co-operation that the procurement program for the great Army of 1918 was successfully planned, and he assisted materially in carrying it into effect, thereby contributing directly to the success of the military program."

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The formation of the Division of Purchase, Traffic and Storage had been made necessary by the threatened disorganization of industry throughout the United States. The first tendency of each governmental department, and of each war industry, was to secure a supply of material and labor without considering the effect upon other departments or other industries, which because they were more basic appeared less essential. Had this tendency been permitted to go unchecked, the result would have been utterly demoralizing. That they were checked was at first chiefly due to the efforts of the Council of National Defense. This organization was unable to take effective measures, however, as it lacked executive authority. Accordingly, the General Munitions Board was formed and this was quickly succeeded by the War Industries Board which was established July 28, 1917, and became a separate branch of the Government, May 28, 1918.

The War Industries Board was nothing more or less than the most comprehensive organization for efficiency engineering ever undertaken, but the problem which it faced differed essentially from that which ordinarily confronts the efficiency engineer. The efficiency expert is generally called in to decide how a smoothly running concern can increase its production. Here the board was faced with a problem of supervising a complete change in occupation of thousands of corporations and individuals, who for many years had been living under conditions of economic adjustment. It was not a question of increasing production, it was a question of so harmonizing thousands of diverse demands to make existence under the new conditions possible.

The Board was divided, like other government activities, into many divisions, each dealing with some important branch of industry, and a considerable number of Tech men served in them. Everett Morss, '85, was chief of the section on brass, and also a member of the committee which determined the order in which the immense number of problems for consideration should be taken up by the Board. John C. Hawley, '93, who was also a member of the Council of National Defense, served in the section devoted to fire prevention, his work being particularly directed toward developing methods for protecting munition factories, notably those of airplane and explosive manufacture, and shell-loading plants. As a result of his work in this line, he was called in as an expert, and sat with the Senate Committee upon the investigation of the explosion of some thirteen million pounds of T. N. T. at the plant of the Gillespie Loading Company at Morgan, New Jersey. Hawley states that this investigation was perhaps his most interesting experience.

George K. Burgess, '96, was chief of the Division of Metallurgy, Requirements Division and carried on work for the Department of Commerce, the Bureau of Standards and for other departments. As a member of the Foreign Services Committee of the National Research Council he went abroad and during May, 1917, was under fire at Fort Douamont.

Another branch of the work was that dealing with machine tools, and of this section G. E. Merryweather, '96, was chief. Yet another dealt with supplies, and two of our men were prominent in this work, particularly in that branch dealing with leather and rubber goods. The work of J. F. McElwain, '97, and Arthur W. Lawrence, '05, will be mentioned later in connection with the Quartermaster Department (see page 324).

Previous to the absorption of the Supply Section by the Quartermaster Department, Lawrence, as manager of the Footwear Division of the Committee on Supplies, exercised supervision over the specifications, purchasing, responsibility of manufacture, inspection and delivery of shoes, leather and rubber goods for the Army. Later as manager of the Shoes, Leather and Rubber Goods Division of the War Industries Board, he had charge of the same work in connection with shoes, leather and rubber goods for all portions of the American forces except the Army, and exercised similar supervision over merchandise of the same kind purchased in this country by the Allies. The work included not only the purchase of the goods, but also their allocation, adaptation to American methods of manufacture, delivery and payment.

Perhaps that matter which throughout the war gave more trouble than any other to the War Industries Board was the supply of coal and power. So serious was this problem that officers of the Corps of Engineers were assigned to aid in solving the problem. Among these was Major Carroll H. Shaw, '10. He traveled something like twenty-five thousand

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SUBMARINE-CHASER CONSTRUCTED UNDER SUPERVISION OF A. LORING SWASEY, '98

miles through the north-eastern portion of the United States, working out the power requirements and improved methods of conservation for the district around Cleveland, Harrisburg, York, York Haven and Erie, Pa., and Utica, N. Y. Finally he was placed in charge of the entire New England District.

That section of the Board which dealt with cranes was headed for some time by Charles E. Stamp, '96. His first war work was with the Small Arms Division of the Ordnance Department in connection with the production of rifles and pistols, but about the first of May, 1918, he was detailed as acting chief of the Crane Section of the War Industries Board, during the temporary absence of the chief. His first job was the ascertainment of the requirements for locomotive cranes and their allocation to the Army, Navy, Emergency Fleet Corporation, Railway Administration and the Allies. Previous to the war the annual production of locomotive cranes in the United States had been about seven hundred and fifty. In November, 1917, it had risen to a little over one hundred per month. With the aid of various crane builders the production was increased before the armistice to over one hundred and forty per month, and arrangements had been made by which one hundred of another standard type of crane could be produced, making the total some three thousand per year, had the war continued. In addition to direct government orders, contractors and factories working on war materials and buildings had to be taken care of. This was no easy task, for by the close of hostilities the number of cranes on order by these parties absorbed the entire output of the industry.

Closely associated with the work of the War Industries Board, though entirely independent of it, was that of the War Trade Board, the War Minerals Board and the Fuel, Steel, Railway and Food Administrations.

The War Trade Board was originally established to supervise exports which might

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find their way to hostile countries. The work increased, however, until it finally included a definite commercial policy intended not only to prevent the enemy from getting supplies but also to influence neutral countries to favor the United States. A number of Tech men were engaged in the work, concerning which one of them, Roland B. Pendergast, '02, who was assistant director of Branch Offices in the United States and elsewhere, says: "Starting with the modest policy of controlling the exportation of essential war commodities, the full power of a well-directed control of all our foreign commerce soon made several non-belligerent nations reverse their foreign policies to the benefit of the United States and the Allies, and the great discomfiture of our enemies. The game was fascinating and the score gratifying."

A great many of our men were engaged in work connected with the Fuel Administration, but for the most part their stories present nothing of unusual interest. E. C. Lufkin, '85, as vice-chairman of the National Petroleum War Service Committee, did valuable work in co-operation with the Fuel Administration, and it is due to him and his associates that it was unnecessary for the Government to take over the petroleum industry. Granger Whitney, '87, gave assistance in the matter of coke in various districts. During the war he visited practically all the beehive coke districts east of Oklahoma. He also inspected a number of coal mines where there was difficulty in operation that increased the ultimate cost of producing coke, and visited several by-product coke plants and metallurgical plants using coke. His reports to the Fuel Administration were instrumental in increasing the output of coke, and in fixing a price for the product during the war period.

Many of our men served as district administrators. Benjamin S. Hinckley, '99, for instance, was charged with the distribution of fuel in New England. Others took care of it in Massachusetts, Illinois and other states, and still others in addition to their usual duties looked after distribution and conservation in their immediate localities.

In connection with the Railroad Administration, most of our men simply continued in their regular duties in connection with the roads with which they were already associated. George Watson Kittredge, '77, remained as chief engineer of the New York Central Railroad, and also served on the Budget Committee for all railroads in the Eastern Regional District. Elisha Lee, '92, was federal manager of the Pennsylvania Railroad east of Pittsburgh, while William C. Cushing, '87, continued as chief engineer of the same line west of Pittsburgh. James A. Carney, '90, remained as shop superintendent of the Chicago, Burlington & Quincy Railroad, and Daniel W. Richards, '94, carried on as signal engineer of the Norfolk & Western Railroad, and superintendent of telegraph and signals for the Virginia Railroad, while Parker C. Newbegin, '94, served as maintenance engineer of the Bangor & Aroostook Railroad.

Many other men occupied positions of responsibility, but the work differed in no essential from that with which they were charged under peace conditions. T. A. Foque, '88, who served as general mechanical superintendent for five railroads centering at Minneapolis, may perhaps be regarded as typical. He says, "I was not in the military service and when I had a chance to go to France, I put it up to Washington whether I should go or stay here and help keep the railroads in operation. I had to pass up the opportunity for overseas service, but in this section of the country, at least, every railroad man did his big part in winning the war."

In the matter of Food Administration most of our men served on volunteer committees engaged in various work in this connection throughout the United States. There are, perhaps, two important exceptions to this rule in Herbert S. Bailey, '05, and Julius Alsberg, '02. Alsberg was principal assistant to the chief of his division, and was in charge of glycerine, soap and candle manufacture throughout the United States, being especially charged with the increased production of glycerine from which several propellant and high explosives are produced. Bailey as chemist in charge of oil, fat and wax investigations in the Bureau of Chemistry, became assistant chief of the Fat and Oil Section of the Food Administration. He was responsible for most of the product for an increase in production and the conservation of fats and oils, for the collection of statistics regarding fats and oils in the United States, and for the allocation of glycerine to the governments of Great Britain, France and Italy.

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A number of other men served as advisers or members of various divisions dealing with some special variety of food, and among these may be mentioned Wallace E. McCaw, '92, who advised on matters relative to edible and non-edible oils. George E. Howe, '95, was a member of the Milling Division. Professor Hudson B. Hastings, '07, was chairman of the Fresh Fish Commission. Theodore I. Jones, '96, was chairman of the Committee on Food Protection. Henry M. Loomis, '97, was chief inspector of the Maine Sardine Inspection Service. Henry P. Benson, '86, was chief inspector of the Sugar Division in Massachusetts.

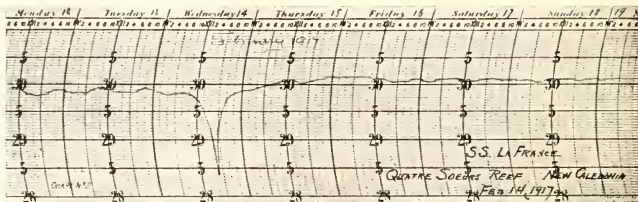
Some of the most interesting work in connection with the Food Administration was that of the Sisal Committee. It will be recollected that sisal hemp is the best fibre for the manufacture of twine for the use of harvesting machinery. This product is obtained from Mexico. On several occasions during the war the supply was seriously interfered with, and since the sisal situation had a direct bearing upon the wheat and flour supply of the world it became a matter of great importance. In October, 1917, all the manufacturers of rope and binder twine in the United States were called to Washington to confer with the Food Administration as to ways and means of providing sufficient binder twine with which to harvest the grain crops of the world. This resulted in the election of the manufacturers of a committee of six to represent them in all matters pertaining to fibre and twine and frequent meetings of this committee were held in Washington lasting from three to six days and this was one of the very last committees of the Food Administration to cease functioning in the summer of 1919. One of the six men appointed to this committee was Francis C. Holmes, '92, who subsequently was elected president of the Manila Fibres Product Association, Inc., which was formed to carry out rules and regulations of the War Trade Board concerning the shipment, importation, purchase and sale of manila fibre and its products.

Mrs. Lewis M. Norton (Alice Peloubet, '96), was the editor of the "Journal of Home Economics," the official organ of the Food Administration which worked throughout the war toward economy of food supply in homes throughout the nation. A number of others served as members of State committees including George H. Stoddard, '75, Boston; George D. Lovering, '78, Texas; W. B. Ayer, '82, Oregon; Frederick A. Heath, '86, Kentucky; Ariel B. Edwards, '93, Rhode Island; George B. Welling, '95, Vermont; Doctor John T. Dorrance, '95, New Jersey; William R. Collier, '00, Georgia; and Paul J. Pitner, '03, Pasadena, California.

Perhaps no war industry was more important than steel, and this like fuel and food had a separate administration. Henry C. Morris, '00, worked for some time in this department and later on became a staff member of the War Minerals Investigation of the Bureau of Mines. He worked upon the problem of manganese and other rare minerals, and was the author of a confidential bulletin on zirconium. In his work he was associated with a very considerable number of Tech men of whom only a few may be mentioned. Professor Ernest A. Hersam, '91, was in charge of investigations at the University of California regarding ores of chromium and of manganese. Professor C. H. Clapp, '05, of the Montana State School of Mines undertook work of the same nature relative to the chromite deposits of Montana. His most active work, however, so he states, was that of providing housing facilities for the military guard at Butte, without which it might have been difficult to keep up the supply of manganese, zinc and copper mined in that district. William C. Phalen, '99, worked on manganese as did George W. Stose, '93, and Allen H. Rogers, '90. Henry C. Morris, '00, was also engaged in war minerals investigation for the Bureau of Mines, and at the same time served as mining engineer for the Production Division of the Fuel Administration. A. W. Tucker, '98, was assigned work of examining and appraising mineral properties in the Southern Appalachians, while Captain Ernest J. Loring, '95, before receiving his commission, worked as a mechanical engineer for the Bureau of Mines, investigating the problem of helium production, of which as we have already seen Colonel William H. Walker was at that time in charge.

Perhaps one of the most interesting pieces of work was done by Walter R. Ingalls, '86, who even before the United States entered the war, worked for private companies in Great Britain and Australia, and who subsequently worked with both the War Indus-

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FACSIMILE OF BAROGRAPH RECORD OF STORM DESCRIBED BY W. SPENCER HUTCHINSON, '92

tries Board and the Bureau of Mines. In behalf of a group of zinc smelters of the United States, he made a study of the quality of spelter suitable for the manufacture of cartridge brass, and succeeded in dispelling a long-honored and firmly rooted belief that a small percentage of cadmium in a spelter is injurious in this type of work. As a result of his investigation the United States Ordnance Department revised its specifications for spelter, thereby making available an immense supply which had previously been considered impossible to utilize. In addition Ingalls was active in all kinds of war activities, being a consulting engineer for the Bureau of Mines, a member of the Fuel Administration, a member of the Liberty Loan Committee for New York; he also held important positions in connection with professional journals and societies, and assisted the Government in recruiting the 27th United States Engineers. He later organized an auxiliary association to help this regiment, and raised a fund of twenty thousand dollars for this purpose. It is not surprising that the men of the organization elected him permanent president, nor in view of his past work is it surprising to know that since demobilization he has been making it his business to help the men in every possible way, and to keep them in touch with one another.

The work of the war mineral investigator was not always that of scientific research. The entire globe was ransacked for rare metals and some strange adventures befell some of the explorers. Particularly was this the case with W. Spencer Hutchinson, '92, who says, "In December, 1916, I left on an expedition to New Caledonia, representing one of the large consumers of one of the war minerals. I did not undertake this work for the Government, but I understand that my reports were afterwards available and used by government representatives. I was in Noumea, New Caledonia, at the time war was declared. My passport was the only American one in the island, and the only one that had been seen there in some years.

"My visit to New Caledonia was not wholly without adventure and peril. I had left Noumea the evening of February 13, 1917, in a small coasting steamer to go to a little village called Paagoumène, nearly two hundred miles north. We passed outside the reef and sailed a northwest course all night. In the morning it was foggy and showery and it was some time before the captain was able to pick out the pass through the reef. We finally entered opposite the village of Voh and started up the channel behind the reef. The showers continued and in the afternoon it commenced to blow, but we had no warning of the cyclone which was approaching. The barometer had been somewhat irregular for two or three days, but the line on the barograph showed no particular features. With the wind, however, the barometer began to fall and in two hours it had gone from 30 inches to 28.40 inches. I never saw so much wind or believed it could blow so hard.

"We were behind the reefs, and so had no sea room. The captain put out both anchors and kept his engine turning. The compass was lost soon after the storm started, so we had no idea of direction, and finally went aground. The wind shifted so that first and last it blew from every point of the compass and the seas broke over the ship and

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carried away the life boats and smashed all the woodwork. With the captain and two other passengers I had taken refuge in the captain's cabin on the bridge, the highest point on the ship. The rail around the bridge was carried away and one side of the cabin broken in, but fortunately the wind shifted in time to avert its complete demolition and we were safe. For twenty minutes, when the barometer was at the lowest point, the wind died down and it was almost calm. Then the hardest blow of all came when the barometer was on its way up. Five hours after the beginning of the storm the barometer had gone back nearly to normal and except for some more rain the storm was over.

"In the morning we found that we had gone on a small reef, known as Quatre Sœurs, four miles off the shore. We had dragged the anchors at least three miles and undoubtedly owed our preservation to the fortunate striking of this small reef. If we had gone by it, we would not have stopped short of the Grand Reef, four miles farther out, where there was no protection whatever from the open ocean. We had no means of getting ashore, but the next afternoon five blacks came out in a whaleboat to see if anything was left on the ship.

"In 1917 I visited South America, this trip being for another of the war minerals. I spent several weeks in the Andes at an altitude of 15,500 feet. I had the influenza while there, fortunately in a mild form. At Cerro de Pasco, I met Barnett, '14, and at Lima, Glidden, '05. At Huaracaca I just missed Drake, '94, who left a few days before I arrived."

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One of the first problems which confronted the Government and its advisors at the outbreak of war was that of providing camps for the National Guard freshly called into the federal service and cantonments for the new National Army. The work of construction in the Army had always been assigned to the Quartermaster Department and accordingly this work fell to the Cantonment Division directed by Colonel (later Brigadier General), William I. Littell. Through the arrangements made by the Council of National Defense, General Littell was able to avail himself of a committee of engineers representing some of America's best talent, and including among others, Charles T. Main, '76, George W. Fuller, '90, and Leonard Metcalf, '92.

The task which General Littell and the Advisory Committee faced was to arrange at once for the construction of a large number of cantonments, each one of which was to house one combat division, but they were not informed as to just what constituted a combat division. Previous to the outbreak of war, a division of the United States Army had never been assembled. At the very time that the cantonments were being planned, the General Staff was considering a change in the size of the infantry company, the basic unit of the division, which would make each company number two hundred and fifty men instead of one hundred and fifty. Had General Littell and his associates waited for this question to be decided there would not have been a single cantonment ready by January 1, 1918; there would have been no army ready in March, 1918, and the war would have been lost. Realizing that any hesitation would be fatal, General Littell decided on barracks holding one hundred and fifty men each, trusting to the skill of his advisors to find a way out of the difficulty in case a change in plan was subsequently made. As a matter of fact, the change was made but involved comparatively little difficulty, for by small alternations in the barracks it was possible to meet the conditions.

Fuller seems to have taken a very prominent part in getting this work under way. Together with Metcalf he served on the committee dealing with engineering preparations in the general layout of sanitation in the various camps. Although handicapped seriously by the fact that not only was the number of men to be housed uncertain, but the very sites of the cantonments had not as yet been selected, he went ahead in laying down general principles, and it was very largely due to his activity at this time that early in September the cantonments were able to receive their first troops. In particular Fuller and Metcalf busied themselves with form of contract and the selection of contractors, a very important matter, for, as can be seen, the question was not who could do the work the cheapest, but who would finish it in the shortest possible space of time. Had the competitive system of bidding been utilized, it is possible that no bids would have been

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received, since the cost of material and labor was mounting at such a rate that no contractor could make any reliable estimate. Had bids been received they would necessarily have been extraordinarily high. The contracts as actually drawn were made out on the cost plus basis, concerning which there has been such wide discussion and such very general misunderstanding. The cost in the case of the cantonments was not cost plus ten per cent, as is generally supposed, but in the case of contracts less than one hundred thousand dollars cost plus seven per cent, while for larger contracts, the per cent was smaller, being but two and one-half per cent for contracts of ten million, and above that price a flat rate of cost plus two hundred and fifty thousand dollars was adopted. The spirit of the contractors was shown by the fact that a number undertook the work at cost plus one dollar, while a number of others would have done so could they have been insured prompt payment, which had not always been forthcoming in past transactions with the Government. The form of these contracts was placed before a special committee including the presidents of some of the national engineering societies, contractor's associations and chambers of commerce, in the United States, one of the members of the committee being Charles T. Main, '76. This committee approved the type of contract in practically every particular and it was used throughout the remainder of the war with but small alteration. The results obtained speak for themselves. The job as a whole required about eight hundred billion board feet of lumber and other materials in proportion, and involved the employment of 200,000 men at a single time, yet in ninety days from the time the contracts were first awarded, the cantonments were able to house troops for the new draft army, though several were only about fifty per cent complete.

The government construction program continued to enlarge rapidly until the appropriations amounted to \$1,084,000,000.00, that is to say, nearly three times the cost of the Panama Canal. So gigantic a task could no longer be handled by the Quartermaster Department and it was accordingly placed in charge of an independent organization, the Construction Division. The personnel of the new division, with some additions, was practically that of the former Cantonment Division of the Quartermaster Department, General Littell remaining in command for some time, although a little later he was succeeded by Brigadier General R. C. Marshal.

Arrangements were made by which the Construction Division could at all times call upon the presidents of the various national engineering societies as experts, and as a result Charles T. Main, '76, representing the Society of Mechanical Engineers, and John Lawrence Mauran, '89, representing the Institute of Architects, were frequently consulted.

Main was also sometimes asked unofficially to give advice regarding many pieces of work, and was also used as an authority in settling questions which came up between different Governmental Departments. Thus, if the Division of Purchase, Storage and Traffic in a certain case had reason to believe that an officer of the Construction Division was not properly performing his duties, the matter was referred to Mr. Main for investigation and settlement.

After the cantonments were built, it was found necessary to equip them with many devices to provide for the comfort of the men, perhaps the most important being the arrangements for cooking, heating and laundry. As a consulting engineer in this matter, A. C. Willard, '04, Professor of Heating and Ventilation at the University of Illinois, carried out extensive experiments on the heating power of various equipment with a view toward establishing specifications, which would insure efficient heating and which at the same time could be quickly met by manufacturers. He determined the relative merits of individual heaters such as were installed in most of the southern camps as compared with central heating systems installed at Camp Devens and elsewhere upon his recommendation. Willard also gave assistance in making laundry arrangements for the camps. Various solutions of the problem were adopted, including government-operated laundries, government-built and privately operated laundries, and contract systems. All of these matters were rapidly adjusted and in each camp the necessary facilities were provided for taking care of the clothing of the thirty thousand men quartered therein.

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The cantonments, which were in fact small cities, had to be provided with public utilities, notably, roads, sewerage, telephone service, water supply, and fire protection, and accordingly it became necessary to organize a special corps to operate utilities at camps and cantonments. This work appears to have been undertaken largely at the suggestion of Fuller and Metcalf, who assisted Colonel Hartman in drawing up instructions to officers in command of utilities, and also directions for the inspection and operation of certain of them.

Perhaps the most important utility in the camps was the fire-protection system, for it is needless to say that the four million dollars' worth of wooden buildings in each cantonment offered a serious risk in case of a fire breaking out during a period of high wind. Clarence Goldsmith, '98, acted as a consulting engineer for the Cantonment Division in matters relative to fire protection and water supply. He was subsequently commissioned major and placed in charge of all fire-prevention engineering in the United States and its insular possessions, organizing fire departments, drawing up regulations, arranging for the installation of equipment, and in general performing duties similar to those assigned Major Edwin V. French, '89, in the American Expeditionary Forces (see page 222), although the quantity and value of the property protected was if anything even larger.

Fuller subsequently carried on work for the United States Housing Corporation, and also became a delegate to the Franco-American Engineering Congress in December, 1918, at which plans for the reconstruction of France were considered.

The Construction Division was originally very simple in form but it slowly grew until it had a large and complex organization including seven main branches,—Engineering, Contracting, Administration, Construction, Procurement, Maintenance and Repair and Accounting and Materials.

Allan B. McDaniel, '01, became principal engineer of the Engineering Division. Allan W. Crowell, '02, had charge of all drafting work for the Construction Division with the title of Senior Civil Engineer and Chief Draftsman. He was in this work from the very start, beginning in May, 1917, and supervised the laying out and original drawings for all emergency construction. The drafting force ultimately included over two hundred men and more than five hundred separate projects were handled.

A considerable number of other Tech men were also connected with the Washington office of the Construction Division, including Wilson B. Parker, '88, Draftsman and Expediting Engineer, and George D. Hall, '01, Camp Planner. The latter subsequently took up work with the United States Housing Corporation. Franklin Brett, '87, was also engaged in camp planning which he took up only after he had been refused admission to the first officers' training camps on the ground of deafness. He later tried for a commission as an observer in the Air Service, but was again refused for the same reason.

The outside organization of the Construction Division was exceedingly simple consisting at each project of an officer known as the Constructing Quartermaster, who was the Government's representative and who was sometimes assisted by one or more "super-vising engineers," generally representing the consulting engineer who had laid out the work. His duties can be pretty accurately judged from the statement of Colonel Horace S. Baker, '03, who says: "A constructing quartermaster in charge of one of the original camps worked under most favorable conditions; he had only typical plans, made his own layout and planned his own work. He had a general contractor who would do anything the Quartermaster ordered; he could employ labor and buy material himself or have the Contractor do it. He paid all bills with his own checks on the Treasurer of the United States. All we were asked to do was to deliver a serviceable camp at the specified date and most of us were fortunate enough to do this."

Colonel Baker who had charge of the National Guard camp at Camp Bowie, Texas, will be remembered as the man who set the New England Intercollegiate record for the half mile at 1-59, and upon the same afternoon lowered the Technology record for the mile to 4-30 $\frac{3}{4}$. His record in building Camp Bowie was equally notable, for the job, which involved the employment of five thousand men and the use of six million feet of



A TYPICAL SCENE IN ONE OF THE AIRDROMES LAID OUT BY CHARLES G. LORING, '05

lumber, was completed a week before the scheduled time. Later he became a colonel and commanded the 111th Engineers at St. Mihiel and the Argonne. (See page 187.)

Another man prominently engaged in this work was Captain Maurice R. Scharff, '09. Scharff, it will be remembered, during the early summer of 1917 was in charge of the Technology Bureau in Washington. When work was started at Camp McClellan, Morris Knowles, Inc., of Pittsburg, who were charged with the engineering work requested the appointment of Scharff as supervising engineer. As such, acting under the direction of Major Dulin, the constructing quartermaster, Scharff handled the general layout of roads, water supply, electric distribution, sewerage, railroads and such work on the buildings as was necessary to locate them and adapt the standard designs furnished by the Government to the local conditions. Scharff was later commissioned and promoted to captain, going abroad and taking charge of the Division of Water Supply, Base Section No. 2, Bordeaux, and later taking charge of the Computation and Drafting Section, War Damages Service, United States Commission to Negotiate Peace.

Later on it was decided to convert Camp McClellan from a camp to a cantonment, and as constructing quartermaster, Major H. W. Beers, '06, was placed in charge. Previous to entering the Army Beers had been general manager for the contractor erecting Camp Gordon, Ga. The work at Camp McClellan was carried on on a straight purchase and hire basis without the use of contractors; the work involved about seven million dollars and with the exception of water and sewerage systems, presented in some respects a more difficult problem than the construction of a new camp.

Major Harold E. Kebbon, '12, as assistant construction manager of the Cantonment Division exercised general office supervision over the construction of eight National Army cantonments, and later as constructing quartermaster had charge of several other projects. He may be taken as a typical example of those of our men who engaged in this type of work. He was assigned to duty as constructing quartermaster at Camp Ordway (now Meigs) at Washington, D. C. on October 2, 1917, and completed construction of this training camp on November 22, 1917, not only erecting barracks, mess halls, storehouses and lavatories, but installing complete water, sewer and electric lighting systems

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as well. During this same period, a smaller camp for the Coast Artillery was constructed at Potomac Park.

On November 22, 1917, Kebbon received orders to report as constructing quartermaster at General Hospital No. 1 at William bridge, N. Y., in charge of an extension to accommodate five hundred beds. The work was carried out under severe weather conditions and was completed on January 11, 1918. The same day he received orders to proceed to Camp A. A. Humphreys, Belvoir, Virginia, to construct a large training camp for engineer troops to accommodate eighteen thousand men.

Work was commenced the following day in the midst of a primeval forest, with railroad facilities four miles distant and with no roads leading into the camp site. The winter was unprecedented in this region for cold and snow, and the work developed under great handicaps. Hundreds of army and civilian trucks transported the material over roads rapidly constructed and on many days impassable. Six thousand workmen were engaged and were housed and fed on the job. All building sites and roads as well as the parade grounds had to be cleared of heavy timber and the stumps dynamited as the work proceeded. As groups of barracks with accessory buildings were completed they were immediately filled with engineer troops who were trained and sent overseas by the thousand.

A complete water system was developed by damming a stream and carrying the water through a filtration plant and into a steel tank holding three hundred thousand gallons. The work included the installation of a sewer system, electric lighting plant and the construction of railroad tracks three miles in length connecting with the main line from Washington to Richmond. In May, the camp was officially opened.

Perhaps the cantonment of which we have the best account is Camp Lewis, Washington. At least two Tech men took a prominent part in this work, namely,—William J. Roberts, '91, Supervising Engineer for Water Supply and Sewers, and Charles H. Alden, '90, who had the supervision of all building construction, and of such architectural work as was not provided for in the standard plans furnished from Washington. Alden was later commissioned in the Quartermaster Corps and saw service abroad as assistant to the Chief Quartermaster, 6th Army Corps, in the Division of Construction and Forestry, and



THE SAME AVIATION FIELD AS SEEN FROM AN AIRPLANE

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still later as a member on the staff of the engineer officer, in charge of construction, American Embarkation Center, Le Mans.

Camp Lewis, which may be regarded as typical of the cantonments upon which our men worked, was a city composed of 2,179 structures arranged to accommodate 50,000 men, and 15,000 horses, not to mention cannon, wagons and storage for equipment and food. The chief elements in building such a cantonment are two, namely,—the construction of wooden buildings, and even more important provision of water supply and sewerage. Accordingly, before any further steps were taken, the constructing quartermaster requested Mr. Roberts to lend his assistance in so locating the camp that the quickest possible start might be made in the construction, and also to provide the best railway facilities for the delivery of materials, and later men at the camp. Roberts, having solved these problems satisfactorily, was appointed supervising engineer for the water supply and sewers.

Work upon the camp was commenced June 25, the contractors employing at that date, fifty-seven men. The number, however, rapidly increased to 8,584. It was not until July 10 that the preliminary layout of the camp was approved, but in the meanwhile preparations had been made and a considerable consignment of lumber had been delivered by government motor trucks from Tacoma. All the buildings were constructed upon the government standard plans, the larger ones being built on a unit system by which the length could be increased by simply adding a number of additional units. All were frame, and two-ply paper was used throughout for roofing. In the lavatories the concrete floor was first put in place together with sills sufficient to support the plumbing. While the floors and sills were being laid the sides were being built ready to erect as soon as the floors were completed. The plumbing was installed and the walls and roofs put in place simultaneously. The camp seems to have been especially favored by the fact that the weather conditions throughout were good, and very fast progress was made on all the work. In a single day seventy-one cars of lumber were received and distributed; over two million feet, that is to say, about fifty carloads were actually fabricated and erected.

That portion of the work of which Roberts had special supervision was of course that of water supply and sewerage, and this was naturally carried out on a scale commensurate with the rest of the undertaking. Advantage was taken of a number of large natural springs which represented an underground flowage from American Lake. These springs supplied water during the early construction, and at the same time their flow was measured in order to determine whether the supply would be sufficient for the completed camp. Wells were driven which proved ample, and the rest of the problem was fairly simple, as the presence of a hill quite near the camp provided a site for storage tanks. The principal mains were of 10 and 14-inch diameter, with a normal head between 113 and 153 feet, and provision was made for 250 fire hydrants; the system supplied 2,750,000 gallons per day.

The sewer system consisted of two sewers. The flow throughout the entire system was by gravity, and had to be so designed that it would not interfere with the du Pont Powder Company's plant lying between the cantonment and Puget Sound. Each trunk line started with a diameter of 10 inches and increased to 24 inches, and averaged about 10,000 feet in length. The outfall sewer from the junction of the main trunk lines to the edge of the bluff at Puget Sound was over 15,000 feet in length, and varied in diameter from 24 inches to 30 inches.

The first actual construction work on the water and sewer systems of the cantonments was begun on June 21, 1917, and 78 days later the entire sewerage and water system was complete.

Among our men who, as constructing quartermasters, had charge of similar work may be mentioned Captain William W. Pagon, '07, temporarily in charge of the Curtis Bay Ordnance Depot, Md.; Major Kenneth C. Grant, '02, in charge of construction of an addition to Camp Grant, Illinois, and later an assistant to the chief of one of the sections in the central office at Washington; Lieutenant-Colonel Charles A. Watrous, '99, Assistant Constructing Quartermaster at Camp Dodge, Ia., and Major F. C. Starr, '05, Constructing Quartermaster at General Hospital No. 16, New Haven, Connecticut, General Hospital No. 32, and the Field Museum Hospital at Chicago. Starr later became

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Supervising Constructing Quartermaster of Hospitals, and Liaison Officer between Construction Division and Surgeon-General's Office. His section provided over 30,000 beds at an expenditure of \$22,000,000, the work including both the construction of new buildings, and the remodeling of old ones. Lieutenant-Colonel Harry D. Rawson, '96, was Constructing Quartermaster at the Aberdeen Proving Grounds, Lakehurst Gas Proving Grounds and Gas Training School, Lakehurst, N. J., and later Supervising Constructing Quartermaster at Washington. Major George T. Seabury, '02, served first as expediting officer in the Engineering Section of the Construction Division on work for the Signal Corps, Department of Military Aeronautics and Department of Aircraft Production. He also served as a supervising constructing quartermaster exercising office supervision over Camps Devens, Dix, Lee, Meade, Merritt, Mills and Upton. Major Walter E. Spear, '97, was constructing quartermaster at Camp Upton, having previously been consulting engineer on water supply and sewerage for that camp. Major Harry M. Montgomery, '79, was constructing quartermaster of the Jeffersonville Interior Storage Depot, Jeffersonville, Indiana, and the St. Louis Interior Storage Depot, St. Louis, Mo., one of the most important pieces of work carried on. The constructing quartermaster was in each case absolutely responsible for the disbursement of government funds, and such auditing and inspection as was necessary to insure that the money was paid only where the Government had received that for which it contracted. The cost of the various projects named varied from \$655,000 in the case of Camp Meigs, to \$16,000,000 in the case of Camp Meade and Camp Lee, the average probably being about \$8,000,000, which was the cost of Camp Lewis.

Throughout the work just mentioned these constructing quartermasters were aided by other Tech men acting as supervisors and consulting engineers. Thus, as we have already seen, Scharff was a supervising engineer representing Morris Knowles, Inc., during the construction of Camp McClellan. Morris Knowles, Inc., also acted as consulting engineers at Camp Meade, Md., and at this place Morris Knowles, '91, himself acted as supervising engineer. He subsequently became connected with the Emergency Fleet Corporation. Allen Hazen, '88, acted as supervising engineer at Camp Dix, N. J., caring for water supply and sewerage. Frederick G. Bennett, '05, had charge of the same work at Camp Merritt. Schuyler Hazard, '90, had slightly different work as auditor and civil engineer at Camp Morrison. Francis J. Mague, '02, acted as general superintendent of construction on the Army-Base piers at Bush Bluff, Va. John B. Ferguson, '99, was engaged in the construction of the Balloon Observers School at Camp Eustis, Va., in which project, A. D. Nickerson, '88, was in charge of procurement. T. C. Atwood, '97, took part as a supervising engineer in the construction of Camp Merritt, and also did work on the Squantum Destroyer Plant and other plants connected with torpedo boat production; he finally became district plant engineer, in charge of all construction and maintenance of shipyard plants in the Middle Atlantic District for the Emergency Fleet Corporation. Alexander H. Twombly, '87, was a designing and constructing engineer at Camp Shelby, Miss.

Later on it became necessary for the Government to arrange for further construction, more especially for permanent army and naval bases, interior storehouses, ordnance shops, and similar plants, and in this work Tech men seem to have taken as great a part as in the emergency work in connection with the cantonments. Thus Ross F. Tucker, '92, was superintendent of pile foundations for the Port Newark Terminal, and later had charge as constructing manager of the United States Explosive Plant "C"—a seventy-million-dollar project at Nitro, West Virginia, of which more will be said later (see page 362). Richard E. Schmidt, '87, had charge of the design of the Speedway Hospital at Chicago, and of part of the Fort Sheridan Hospital, the two totaling 6,750 beds. Robert A. Shailer, '73, was engineer of construction of the Charleston Port Terminal, a project involving the construction of one hundred fireproof buildings and a dock some three quarters of a mile in length, the whole enterprise costing \$12,600,000. Albert E. Weidinger, '94, as architect on the construction staff of the Planning Division had a prominent part in drawing up the plans, specifications and details of alterations and additions to the Gas Defense Plant at Long Island City.

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(U. S. Official)

A PORTION OF THE BROOKLYN ARMY SUPPLY BASE, FOR WHICH CASS GILBERT, '80, WAS ARCHITECT

Perhaps the two largest pieces of work handled were the two great Supply Bases at Brooklyn and Boston. For the former, Cass Gilbert, '80, was architect. The entire project was handled by Gilbert, ably assisted by B. W. Latham, '03, Charles A. Johnson, '09, and others.

The base consists of two reinforced concrete warehouses, eight stories in height, that nearer the water being a solid structure 980 by 200 feet, while the other is 980 feet long by 306 feet wide, with an interior court 66 feet in width. This court is equipped with electric travelling cranes at roof level, and concrete cantilever receiving balconies, staggered to permit landing of freight from cars, and is protected by a skylight roof supported by steel trusses and purlins.

The base is equipped with three covered piers 150 feet wide and over 1300 feet in length and one uncovered pier of the same length and 60 feet wide. Sheds are double deck and the second deck is connected in each case by a bridge to the adjacent warehouse enabling freight to be wheeled directly on a slight down grade from building to pier. Vertical transfer of supplies is handled by ninety elevators placed in the various buildings and piers, each of 10,000 pounds capacity and travelling at the rate of 150 feet per minute. It is estimated that twelve ships of 5,000 tons net capacity can be berthed at one time and that they can be loaded in fifty hours. This base is said to be the largest in the world, and appears to be on hand for which the greatest quantity of money was authorized, for its cost is given as \$32,500,000.

The Boston Supply Base was a close second. In this case the entire design was in the hands of three Tech men, namely,—Frederic H. Fay, '93, Charles M. Spofford, '93, and Sturgis H. Thorndike, '95. This project is typical of those handled by our graduates, and is of special interest because of the large number of Tech men employed in one capacity or another on the work, there being no fewer than ninety of them, if Colonel Gow, the Constructing Quartermaster, who is a lecturer in the Civil Engineering Department, is counted.

The firm of Fay, Spofford & Thorndike was engaged on March 3, 1918, to make

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all plans and provide engineering supervision of construction at the Boston Base. In addition, the firm was called upon for information relative to the value of the land, for negotiations with the State authorities upon matters relative to the purchase of the land and for engineering questions relating to the transfer of the land. It may be added that this was the first case of private engineers being employed by the Construction Division of the Army to give such comprehensive engineering service.

Preliminary authorization for the expenditure of \$14,570,000 for a portion of the project was made by the War Department on April 6, 1918, and authorization for the remainder of the funds was made on May 15, 1918. The total amount authorized for the project was \$28,040,000. After the preliminary authorization the work of construction immediately began and at the same time the engineers commenced the preparation of detailed drawings for the design. The work was carried through with exceptional speed, the first use being made of the big storehouse on October 4, 1918, practically six months after the first authorization of funds had been received. The first ship was docked on December 26, 1918, while the foundations for the storehouse, the first portion of the work to be begun, were still under construction. The entire project was in use about a year after the beginning of construction.

The base is located in South Boston, somewhat easterly of the Commonwealth Pier and adjoining the new Commonwealth Dry Dock. It forms a great shipping terminal having berthing space for eleven cargo ships, ample warehouse accommodations for storing supplies, transfer sheds, paved streets, open storage spaces, over a mile of concrete-decked wharf, adequate railroad tracks and a large supporting railroad yard.

The buildings include a reinforced concrete eight-story storehouse, 126 feet wide and about one-third of a mile long, forming one of the largest buildings of this type ever constructed; this building is so designed that it may be used for manufacturing as well as storage if the plant is ever turned over to private hands. Other buildings are two reinforced concrete pier sheds, each three stories in height and somewhat less than 1000 feet in length, a steel-framed wharf shed adjoining the large storehouse and of equal length with it but only two stories in height, together with a boiler-house, electric sub-station,



GENERAL VIEW OF THE BOSTON ARMY SUPPLY BASE, DESIGNED BY FREDERIC H. FAY, '93, CHARLES M. SPOFFORD, '93, AND STURGIS H. THORNDIKE, '95

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administration building and other minor buildings. The wharves are formed of wooden bearing piles with decks of reinforced concrete slabs supported on concrete girders and are provided with railroad tracks.

The equipment includes gantry cranes for handling freight between ships and either the ground floor or the second floor balcony of the wharf shed, locomotive cranes, tractors and trailer trucks, ti ring machines and other miscellaneous apparatus. The shipping capacity of the plant is estimated at 16,000 tons per day for overseas freight.

Of the total appropriation of \$28,000,000 about \$3,000,000 was for mobile equipment for which another fund later became available. The actual expenditure for construction alone was less than \$24,000,000 showing a saving of over \$1,000,000 from the estimated cost,— a rather unusual feature in government work.

Eighty-nine Technology alumni and students, including the members of the firm, were employed in the engineering work in connection either with design or construction. Amongst these may be cited Harry F. Sawtelle, '97, Principal Assistant Engineer; George L. Mirick, '93, Resident Engineer; John Ayer, '05, Executive Engineer on Construction; B. A. Bowman, '09, Division Engineer in charge of design of superstructure; C. A. Farwell, '06, Division Engineer in charge of design of foundations and wharves; George L. Smith, '08, in charge of the architectural treatment.



THE BOSTON ARMY SUPPLY BASE VIEWED FROM THE HARBOR

Another piece of work more or less intimately connected with the terminals was that of supplying tugs and other harbor craft to operate in connection with them. This work came under the jurisdiction of Lieutenant-Colonel William Couper, '06, who had previously acted as constructing quartermaster at Camp Jackson and later at the North Columbia Cantonment. He became a supervising constructing quartermaster at Washington, and as such exercised supervision over twelve contracts covering the construction of two hundred and thirty-four harbor craft for the various terminals at a total cost of \$5,200,000.

OTHER WAR DEPARTMENT WORK

Impressive as was the work of the Construction Division, it was of course by no means the only activity of the War Department during the war. Both the Division of Purchase, Supply and Traffic and that of Construction were outgrowths of the Quartermaster Department. During the spring of 1918, J. F. McElwain, '97, served as assistant chief of the Supply and Equipment Division. While acting as assistant chief of the division, McElwain also acted as chief of the Shoe, Leather and Rubber Goods Section, a work for which his previous experience in shoe manufacturing very well fitted him. As we have already seen (page 308), he had served as chairman of the Committee of Shoe and Leather Industries, appointed by the Council of National Defense, and later served as a member of the Committee on Supplies of the War Industries Board until this committee was united with the Quartermaster Department. When this change was made another of our men, Arthur W. Lawrence, '05, who had previously served as manager of the Shoe, Leather and Rubber Goods Division of the War Industries Board, also entered the Quartermaster Department, where he became Chief of the Shoe, Leather, and Rubber Goods Branch of the Procurement Section. Lawrence was offered a commission as lieutenant-colonel but did not think it proper to accept it as he considered the uniform should be

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reserved for the fighting men only. In the summer of 1918 he resigned his position in the Quartermaster Department to enlist as a private in the Chemical Warfare Service. He soon after entered an officers' training school and was preparing for a commission at the time of the armistice.

An equally important division was that of Clothing and Equipage. This division was charged with the responsibility for purchase, production and inspection of clothing, hats, shoes, tents, tarpaulins and various other material. The division was subdivided into various branches, of which at least two were directed by Tech men. Kenneth Moller, '07, started as assistant to the Chief of Clothing and Equipage Division, but later was placed in charge of the general relations between the division and the various general supply depots and still later became chief of the Manufacturing Branch, being charged with the production and inspection of all clothing, tents, hats, shoes and similar material for the entire United States Army. The Rubber Goods Branch was in charge of Walter E. Piper, '04, from February 14, 1918, until after the armistice. Piper had charge of all rubber footwear for the Army, such as arctics, rubber boots for trench wear and similar material. His knowledge of rubber saved the Government several million dollars as he was able to place contracts for goods immediately after he took charge for prices very markedly below those which had been previously obtained for the same materials.



THE BOSTON ARMY SUPPLY BASE VIEWED FROM THE SHORE

Another of our men who did interesting work for the Quartermaster Department in the early days of the war was Walter M. Newkirk, '92. In the summer of 1917 he worked in developing standardized trucks for the Quartermaster service. Subsequently he returned to his position as vice-president and general manager of William & Harvey Rowland, Inc., and for the remainder of the war manufactured automobile springs for the government.

Mention has already been made of some who served in the Ordnance Department and there were a number of others serving in civilian capacity. Among these may be mentioned Carleton M. Emerson, '06, Chief of the Order of Work Branch in the Estimates and Requirements Division.

A very considerable number of Tech men served as production engineers for the Department in the various districts. Thus F. B. Riley, '05, was production engineer for the Boston District; Irvin H. Kaufman, '98, was production engineer on artillery ammunition for the New York District; Herbert A. Folsom, '97, was production engineer on explosives in the Boston District; where Jesse F. Eames, '02, of the Mechanical Engineering Department was also engaged in similar work. Samuel D. Dodge, '93, was production engineer on explosives in the New York District, having previously acted as Supervising Engineer during the construction of Nitro, W. Va.

Riley's work consisted chiefly in increasing the production of booster pellets for Stokes mortar bombs by the introduction of automatic machinery. Of this work he says: "The principal feature of these boosters is a combination of two cylindrical sticks of T. N. T. and one stick of tetryl each about $1\frac{1}{2}$ inches long and 1 1-8 inches in diameter. These sticks, or 'pellets,' are made by compressing the dry, powdered explosive under 1800 pounds pressure to form solid cylinders of the above dimensions. It had always been a hazardous, slow, hand-machine proposition. So in view of the urgent need we set up a

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bank of fourteen Reidell presses and made automatic chain feeds for each press. These chain feeds looped through the presses and out along the surface of fourteen long tables so that ten operators had access to each chain. These operators (women) detached the dies as they came from the presses and removed the finished 'pellets,' then cleaned the dies, refilled them with powdered T. N. T. or tetryl, and reattached them to the chain feed.

"The presses operated every second, giving a maximum capacity of about 75,000 'pellets' per day per machine.

"They gave the production all right — but it was no place for the proverbial minister's daughter. And in addition to the danger, these operators all were obliged of course to follow the regular procedure on T. N. T. work by taking a hot shower bath each day before changing to their street clothes, stand in row twice a day and drink a spoonful of physic and a large glass of milk; and then eat a prescribed diet of fresh vegetables at the loading plant restaurant. In spite of these precautions those that lasted any time on the job were pretty yellow when the armistice was signed.

"It may be interesting to know of the large number of Providence society women who worked in the plant, nearly all insisted on being assigned to this Stokes booster job — and what is more, nearly all who were so selected stuck to it until November 11."

The nature of these men's duties can be judged from Riley's account. Kaufman was charged with increasing the production of one hundred and twenty-five contractors, most of whom had been previously engaged in work little related to that which they were now undertaking. Some excellent results were however obtained. One firm was engaged in producing boosters and adapters, that is to say those portions of the shell which carry the charge of particularly high explosive which detonates the larger mass in the shell itself. The manufacture of these parts required screw-machine and drawn-metal work, whereas the factory had previously been engaged in the manufacture of automobile tires. Nevertheless, it became one of the most promising producers in the New York District. It is interesting to note that the manager of the plant was a Tech man, but we have not at present his name.

Folsom's work dealt with the production of high explosives and of the chemicals from which they are made, particularly gas-oil and gas-tar fractionates (chiefly toluol). He states that his specialty was unwinding red tape, thereby aiding various plants to obtain necessary tanks and other equipment.

Dodge's earlier work was connected with the water supply of Nitro, W. Va., while his later work dealt with increasing the production of picric acid.

A number of other Tech men served in the Ordnance Department with the title of Expert. Among these may be mentioned Albert B. Tenney, '94, Expert on Toluol, who did work in connection with the installation of several large extraction plants in New York, Brooklyn and other cities.

Carleton S. Koch, '98, became connected with the Production Division of the Ordnance Department and was given the title of Expert on Steel Castings, being charged with the specification, procurement and production of steel castings for use in all types of ordnance work until December, 1918. Throughout the war Koch also continued to direct the operation of the Fort Pitt Steel Castings Company which was producing a very considerable number of castings for war purposes.

Another of our graduates who did notable work in connection with the ordnance program was Ida Annah Ryan, '05, who has the honor of having been one of the first women to become a War Department draftsman. She was engaged chiefly in working on the details of the new heavy railway mounts.

In addition to the work of our men in civilian capacity in the Ordnance and Quartermaster Departments, a great number of other men served in various types of work. Altogether there were one hundred and eighty-four men serving in one capacity or another for the War Department. Only a few can be mentioned here and they have been selected chiefly to give an idea of the variety of work in which our men were engaged. G. F. Atkins, '99, was engaged in testing armor plate. F. E. Faxon, '95, acted as a supervising inspector, examining locomotives and locomotive cranes and special machinery which the government found it necessary to buy at once. He later inspected all sorts of miscel-

OTHER WAR DEPARTMENT WORK



(U. S. Official)

THE PORT NEWARK TERMINAL, THE PILING OF WHICH WAS INSTALLED UNDER THE SUPERVISION OF
ROSS F. TUCKER, '92

laneous material, including oils and greases, needles, various kinds of hardware, machine tools and locomotives. Later on he also had charge of the inspection of steel helmets and thirty-calibre cartridge clips. Edward E. Bugbee, '00, was assistant educational director of the Southeastern District of the Students' Army Training Corps. Armen H. Tashjian, '07, was charged with the design of reenforced concrete steamers for transporting troops.

Considerable work was done for the War Department by members of the Institute faculty, particularly by Professors Augustus H. Gill, '84, George B. Haven, '94, and Harrison W. Hayward, '96. Professor Gill was engaged in testing lubricating oils and gasoline for the Quartermaster Department. Professor Haven carried on tests, chiefly as regards textiles. He handled many articles familiar to every soldier, such as khaki cloth, leather and webbing, gun slings, wing fabrics for airplanes and similar materials. Professor Hayward, '96, acted as consulting engineer for the Aircraft Production Board and later did what he described as "general utility work" in testing materials for the Bureau of Construction and Repair of the Navy and various departments of the Army.

It has been rumored that a work of much greater importance was performed by a member of the Institute Staff, and Professor C. L. Norton, '93, of the Physics Department, is generally believed to have been the man who made this contribution. Professor Norton worked on various government problems acting in a consulting capacity for the Naval Consulting Board, Inventions Board, the Ordnance Department of the Navy, and for the Science and Research Division of the Signal Corps. Of his most interesting work we know absolutely nothing, save that it was considered of such importance by the German Intelligence Service that on several occasions attempts were made by Germany's agents to break into his laboratory and office. In addition to this Professor Norton had some very interesting work in placing the production of metallic magnesium in the United States upon a commercial basis. Previous to the war the entire supply of this material for the United States had been obtained from Germany. It was produced upon a small scale in England by a very costly process of direct reduction. With the outbreak of war

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came the demand for a tremendous supply for use in signal rockets and illuminating flares which could not have been made except by processes worked out in part by Doctor Whitney, '90, of the General Electric Company and Professor Norton.

AIRCRAFT PRODUCTION

Attention has already been called to the prominent positions occupied by Tech men in the technical staff of the Aviation Section of the Signal Corps at the outbreak of war. This staff was aided throughout the war by the National Advisory Committee for Aeronautics. The chairman of this board was John R. Freeman, '76, who, in addition to his duties in connection with aircraft was also serving in the Fire Prevention Section of the War Industries Board, which he in fact organized, and as a member of the Engineering Committee of the National Research Council. The object of the Advisory Committee was of course to assist the Equipment Division of the Signal Corps and later the Bureau of Aircraft Production in providing the tremendous supply of airplanes which had been determined upon.

As has already been pointed out (see page 267) the very conditions of the case made this program almost impossible of fulfillment but the attempt was nevertheless made and success might yet have been attained had there been a little more time. Intimately associated with this work were A. Otterson Miller, '04, of J. G. White & Company of New York and William C. Potter, '07. During the first phases of aircraft production the government had no organization of its own to work out the purchase of material and this duty was accordingly delegated to J. G. White & Company. Miller was assistant purchasing agent of the concern and as a result was instrumental in purchasing various equipment until a standard American design could be developed and deliveries begun. Later on this work was largely taken over by the Equipment Division of the Signal Corps and later by the Bureau of Aircraft Production. Potter was prominent in both of these organizations serving as chief of the Equipment Division and as assistant director of the Bureau of Aircraft Production.

A very considerable number of Tech men aided in the work at the Washington office of the Bureau, among whom may be mentioned H. R. Stuart, '99, Chief of the Electrical Section, L. H. Littlefield, '16, Senior Aeronautical Mechanical Engineer, E. H. Metcalf, '04, Aeronautical Mechanical Engineer, and H. T. Blanchard, '01, Aeronautical Mechanical Engineer. These men's work is fairly well indicated by their titles. Stuart designed electrical equipment, a matter which became very important, in relation to the development of radio telephone. He was not actually in charge of the design of the radio apparatus itself, but he was charged with the proper installation of the apparatus in the planes, one of the severest problems encountered. Littlefield's first service was as an inspector of airplanes and engines for the Signal Corps but he later was transferred to the Bureau of Aircraft Production and traveled throughout the country working on various matters pertaining to the finished planes and conducting acceptance tests. Metcalf was engaged chiefly in what he terms, "the battle of Elizabeth, New Jersey" where he was engaged as a representative of the Government in producing Handley-Page bombing machines. Blanchard appears to have dealt chiefly with wing "dopes" for fabric and the inspection of varnishes and enamels.

Some mention has already been made of experimental work carried on for the Government at the Institute. Its chief experimental station was located at McCook Field, Ohio, and here a large group of Tech men were engaged. Allen Loomis (see page 372) who had at an earlier date invented the valve gear of the Liberty motor served as a consulting engineer and is responsible for the Loomis system of cooling adopted in the later fighting planes in the American Army. He found that it was practically impossible to force water with sufficient rapidity through the radiator to keep the four hundred horse power motor properly cooled, since bubbles of steam were formed in the suction end of the pump which caused the water to overflow and thus be lost. Loomis, however, devised a shunt circuit of water with an injector which so raised the pressure in the suction that the formation of steam was prevented and as a result a somewhat unreliable plane was transformed into one of the most dependable produced.

SHIPPING BOARD

Others engaged in the work at McCook Field were Elisha N. Fales, '11, John C. Morse, '14, John Hyneman, '15, and Shatswell Ober, '16. All were engaged in research work with a view toward improving the models tried out at the field. Fales was also a member of one of the commissions sent to Canada early in the war to study the flying schools of the Royal Air Force at Toronto with the object of utilizing and assisting in the establishment of aeronautics in the colleges and ground schools. The work of Dean A. Fales who represented Technology in these commissions has already been mentioned (see page 12) and Elisha N. Fales was performing the duty of similar character for the University of Illinois. Morse specialized on propellers and assisted F. W. Caldwell, '12, (see page 270). The others were engaged in the usual work of improving the performance of the planes and the simplification of design.

SHIPPING BOARD

Scarcely of less importance than supply of the equipment and housing of the new army was the problem of building ships to supply it while overseas. The war had already resulted in the net loss to the Merchant Marine of the world of nearly 5,000,000 tons. An army of 5,000,000 men overseas would require for its maintenance no less than 15,000,000 tons in addition to that already engaged in trans-Atlantic trade. To create this tonnage and to place it upon the ocean in operating condition the United States Shipping Board was created.

One of the first schemes proposed was that of building one thousand 3,000-ton wooden ships. Upon reading of the proposed program, Henry Howard, '89, was struck by the fact that it would be practically impossible to man and officer them, for there were scarcely sufficient American seamen to man the existing merchant fleet of that date, let alone such an increment as was now proposed. That Howard should have noticed this point was natural, for, although engaged in chemical industry, his tastes and inherited instincts lie on the sea for he is the descendant of Marblehead ship owners who were conspicuous in the days before the Revolution. He was at this time a member of the executive committee of the National Foreign Trade Council of New York City, and chairman of its committee on foreign relations. He is also an experienced and enthusiastic yachtsman.

It occurred to him that it might be possible to take men with experience in allied pursuits and quickly render them capable as seamen, by means of an intensive course of training. Having worked out the details, he obtained from Mayor Peters of Boston letters of introduction and about April 15 went to Washington where he interviewed Mr. Denman. The Shipping Board did not feel that it could even take up the question of personnel at that moment. On the other hand, the scheme which he had drawn up impressed them so favorably that they finally suggested that he should himself take charge of the whole matter. He agreed and was shortly afterwards appointed director of the Recruiting Service of the United States Shipping Board.

One of his first acts was to organize a series of schools for the training of officers for deck and engine room. A full account of this work in which Mr. Howard was assisted by Professor Edward F. Miller, '86, and Dean A. E. Burton has already been given elsewhere. (See page 29.)

A further development of the schools for officers was a special course for chief engineers, designed to fit candidates to handle steam turbines. Men desiring chief engineers' licenses were sent to the various plants which manufactured turbines and there were given special instruction in turbine engineering. In the course of the work each candidate followed a particular turbine through its entire course of manufacture from raw material to finished product. He accompanied this turbine to a particular ship and aided in its installation; he then took the required examinations, and if successful became chief engineer of the ship in which he had installed the turbine. A similar special course was given to assistant engineers covering the manufacture and installation of water-tube boilers.

Perhaps the most interesting side of Mr. Howard's work, however, was that dealing with the recruiting of seamen. The Recruiting Service was divided into several branches:

TECHNOLOGY'S WAR RECORD



ON BOARD ONE OF THE SHIPPING BOARD TRAINING SHIPS DIRECTED BY HENRY HOWARD, '89

namely, the Enrollment Bureau, the Sea Training Bureau, the Sea Service Bureau, which later became a tremendous national shipping agency, and the Social Service Bureau. The Enrollment Bureau was charged with gathering the recruits, the Sea Training Bureau with instructing them, the Sea Service Bureau with placing them in suitable positions upon the ship, and the Social Service Bureau in looking after them aboard ship and when on shore-leave.

The first requisite for the Enrollment Division was a series of recruiting stations and for this purpose through the co-operation of Mr. Louis K. Liggett, the 6,584 drug stores of the United Drug Company were made available. Liggett and Rexall drug stores are to be found in every town in the United States of more than 1,000 inhabitants. The owner or manager in each case was sworn in as a special enrollment agent of the Shipping Board at a salary of one dollar a year. In order to stimulate interest in inland sections of the country, phonograph records of old sea songs were placed on sale. Moving pictures were taken showing scenes of the life of the apprentice seamen and on board merchant vessels of all types; the reel was generally closed with the heading calling attention to the fact that applicants could sign up at the nearest drug store.

Schools for apprentice seamen were started January 1, 1918. No suitable training ships were obtainable and any ships which could be chartered were utilized, even though these were not typical ocean-going ships. The system was organized all over the country, beginning at Boston. Subsequently stations were established at San Francisco, Seattle, New Orleans, Cleveland, and Norfolk. After the armistice, at which time there were over 6,000 men in training, the stations at Cleveland and New Orleans were discontinued. All together about 50,000 officers and men were trained.

SHIPPING BOARD

In the training schools there were three main sections for deck, engine room and mess room personnel respectively. In the deck section, seamen were trained; in the engineer section, firemen, oilers, water tenders, and in the mess-room, stewards, cooks, bakers and mess-boys.

Upon graduating from these ships the men were placed on merchant vessels by the Sea Service Bureau. This bureau is perhaps the most important section of Mr. Howard's work and it presented the greatest difficulties. Perhaps that which was most feared was the probable attitude of the Seamen's Union, which at that date was largely made up of men who were not citizens of the United States. Mr. Howard obviated trouble from this source by forming an advisory board of which the heads of all seagoing unions were requested to become members. So effective was this measure that no labor difficulty of any kind occurred in the fleets of the Shipping Board or of private owners during the entire period of hostilities. Another difficulty was prejudice against the working and living conditions of the common seaman. Investigation disclosed that the prejudice was well founded, and measures were immediately taken to improve matters. Ill-ventilated forecastles were remodelled, sanitary bunks and bedding were provided; officers found guilty of brutality were disciplined, food was improved and upon the newer ships arrangements were made to give each member of the crew separate staterooms, thereby eliminating the danger from influenza, pneumonia and tuberculosis which had previously claimed a heavy toll in the forecastle.

Another matter was the protection of sailors upon the shore, particularly the elimination of "crimps." Closely associated with this problem was that presented by water-front dance halls, saloons and boarding houses, and it became evident that it would be necessary to provide the men with proper and healthful amusement. For this purpose the Social Service Bureau was established. Mrs. Alice S. Howard became chief of the Bureau



PRACTICAL INSTRUCTION IN THE BOILER ROOM ON BOARD A SHIPPING BOARD TRAINING SHIP

TECHNOLOGY'S WAR RECORD

and did much to improve the status of the American merchant seaman. In addition she directed the Bureau's work in home relief for distressed families and saw to the relief of shipwrecked mariners, for no help whatever was furnished these men by the Red Cross except when their ships had been torpedoed.

Howard early realized that the prime factor in preventing Americans from entering the Merchant Marine had been the large percentage of foreigners already associated with the work. He accordingly bent every effort toward Americanizing the foreigners or supplying Americans; up to June, 1919, of the twelve thousand men who had been placed by the Sea Service Bureau no less than seventy per cent were full-fledged American citizens.

The entire scheme was a tremendous success. Throughout the war crews were trained faster than the ships were made ready. The graduates of the Shipping Board schools, both seamen and officers, were in great demand and many obtained their licenses and ratings only to enlist or to be commissioned at once in the Navy.

While Howard was recruiting and training seamen and officers for the Merchant Marine, Professor Carroll W. Doten of the Department of Economics was engaged in recruiting and maintaining the labor supply at the various shipyards. Doten took up this work in November, 1917, and continued in it until shortly before the armistice, when he became head of the Industrial Service Section of the Central Bureau of Planning and Statistics. The latter position was one of the greatest importance, as it involved the co-ordination of the statistical work of all government departments and agencies, in connection with which duty the Bureau under Doten's direction was charged with preparing considerable material for the use of the American delegates to the Peace Conference.

EMERGENCY FLEET CORPORATION

At the outbreak of war it was estimated that the United States would be obliged to construct at least eight million tons of shipping in two years. For this purpose there was organized under the Shipping Board the Emergency Fleet Corporation. After some shifting of personnel, Admiral Capps was appointed general manager of the Corporation and Charles Piez, director general. A little later Mr. Piez succeeded Admiral Capps and was himself succeeded by Commander J. L. Ackerson, '06, as director general. Ackerson was in charge of all ship construction for the Corporation. He was well fitted for this position, having been born near the Great Lakes, having graduated from the Naval Academy in 1901, and having received his degree of Master of Science in the course in Naval Architecture at the Institute. Since that time he had been a member of the Construction Corps of the United States Navy and had served as superintendent of new construction at Mare Island. He had become connected with the Shipping Board as an aide to Admiral Capps; he later served as aide to Mr. Piez, and still later became assistant to Mr. Charles M. Schwab when he took charge of the Emergency Fleet Corporation. Ackerson finally became vice-president of the Corporation.

The work of the corporation was subdivided to a considerable extent and from the beginning of the year 1918, Roy H. Beattie, '93, was assistant manager of the division handling the construction of wooden ships. One of the first three ships built at Portsmouth, N. H., and launched on July 4, 1917, was named the Roy H. Beattie and was christened by his daughter.

Samuel W. Weis, '92, served as representative for the Bureau of Operations of the United States Shipping Board for the Gulf of Mexico. The work included the supervision of the operation and repair of all ships touching at ports in the Gulf of Mexico and the provision of proper cargoes for them. He was also responsible for taking over all new vessels constructed within the district being responsible for the inspection and acceptance trials. Most of the vessels upon which he was called upon to pass were of the wooden type which were so frequently found defective during the war. As the demand for ships was most urgent, the decision whether or not to accept certain of these vessels was difficult and the entire work was very trying. Later on Weis was given other work requiring equal care and judgment. At the demand of representatives in certain agricultural districts

EMERGENCY FLEET CORPORATION

of the country, in which the price of the principal product had been fixed, the President appointed a committee to fix the price of cotton if in the opinion of the committee it seemed advisable to do so. Weis was a member of this committee which after careful consideration found that the available supply of cotton in the world was larger than the demand and it therefore seemed inadvisable to fix the price of cotton at that time. As a matter of fact the price of cotton has since been generally lower than it was at the date upon which the committee made its decision.

One of the most unique pieces of work which the engineers of the Shipping Board were required to accomplish was that of bringing the Great Lake steamers through the comparatively small Welland Canal into Lake Ontario. This work appears to have been in charge of Frederick A. Eustis, '03, assisted by Francis H. Early, '09, and others. The locks were not long enough to carry a number of the steamers and some were of too great beam to pass through the canal at all. Many vessels were cut in two and towed to Montreal where they were again put together. This work was not easy, for a Great Lakes' storm in the winter is no laughing matter and a number of ships and a number of lives were sacrificed. Nevertheless, many ships reached the St. Lawrence.

Finally Mr. Eustis hit upon a scheme for bringing larger vessels through and the steamer "Van Hise" was selected for the experiment. The vessel was nearly twice the size of any which had previously passed the locks. She was cut in two and then heeled over until she lay almost upon her side. This was done by means of ballast tanks placed upon the rails. The whole operation was a somewhat delicate one, since any errors in calculation would have meant capsizing the vessel and a long and difficult salvage operation. The feat, however, was entirely successful, thanks in part, at least, to the calculations of Early.

Another problem, scarcely less important than construction, was that of maintenance of the merchant fleet. Ships constantly require refitting and a ship in drydock, so long as she remained there, was to all intents and purposes a ship lost. The task of keeping our ships in condition rested chiefly upon Captain R. E. Bakenhus, '96, who was manager of the Shipyard Plants Division of the Emergency Fleet Corporation. At the outbreak of war he was serving at the Naval Armor Plate factory at Wheeling, but was assigned throughout the war to work with the Shipping Board. He organized and provided the personnel for the various Shipping Board plants and exercised general supervision over the construction of numerous shipyards and had immediate charge of drydocks and marine railway facilities.

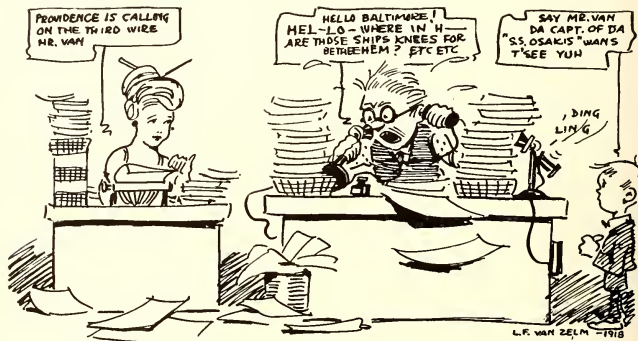
Closely associated with the work of Captain Bakenhus was that of providing terminal facilities of all types. Captain E. Logan Hill, '05, largely because of his executive experience as assistant general manager of the Erie Railroad and because of his special knowledge of terminal facilities and requirements at the port of New York was appointed executive officer of the Port and Harbor Facilities Commission. Captain Hill, just before the outbreak of war, had taken examinations for and received a commission in the Engineer Officers Reserve Corps. In June he was appointed secretary and executive officer of the Port and Harbor Facilities Commission of the Shipping Board. His work in this connection involved the emergency construction of a number of floating drydocks and ship repair plants and the improvement of railroad and marine terminals, the entire object of the whole program being to enable the ships to unload, refit and reload in the shortest possible time, thus enabling a smaller number of vessels to carry a greater amount of material abroad. Shortly afterwards the army desired to call Captain Hill for work elsewhere, but his work was regarded as being of such an indispensable nature that this was not done.

Many other Tech men held responsible positions with the Emergency Fleet Corporation, of whom only a few may be mentioned here. Among these are Robert J. Lyons, '06, Assistant Purchasing Agent; William C. Ewing, '97, Expert on Special Investigations; Dana M. Wood, '06, Financial Assistant for the New England District; L. Franklin van Zelm, '18, Material Supervisor for the North Atlantic District; Charles H. Hughes, '00, Engineer and Technical Aide for the North Atlantic District; Walton Harrington, '10, Senior Engineer, North Atlantic District; William L. Dearborn, '88, Resident Engineer

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at Norfolk; T. C. Atwood, '97, Plant Engineer for the Middle Atlantic District; and George R. Wadleigh, '97, District Engineer for the Supply Division at St. Louis.

It is to be regretted that space does not permit for full account of the work of these and many others. The work of Lyons is indicated by his title. He subsequently took up work in preparing estimates in connection with the cost and maintenance of new projects for the Fleet Corporation. Ewing's work dealt chiefly with the investigation of commercial relations with Brazil, Argentina and Uruguay, particularly what imports from and exports to these countries were necessary as war measures. Of van Zelm we have little account other than that given in his cartoon which speaks for itself. Harrington's most interesting work was in connection with the installation of about twenty-five million dollars' worth of refrigerating apparatus on some thirty-two ships and the construction of eight, ten-thousand-ton capacity, floating drydocks. Dearborn supervised the con-



WAR IS HELL - SO WAS THE SHIPPING BOARD.

LIFE IN THE SHIPPING BOARD, AS SEEN BY F. L. VAN ZELM, '18

struction of the twin concrete graving docks at Norfolk, while Atwood, who had previously been one of the supervising engineers during the construction of Camp Merritt, N. J., had charge of the maintenance of shipyards throughout his district.

Work of a somewhat different nature was assigned Lydia Weld, '02, who was sent to San Francisco to expedite shipment of material. Her experiences appear to have been of a rather interesting nature and valuable results were sometimes accomplished. Miss Weld mentions, for instance, how a shipyard in Oregon was being held up for lack of glass for dead-lights and windows. On investigation it was found that the glass was being held for the United States Navy. The matter was then taken up with the Priority Board, whereupon it was found that next to destroyers, the Emergency Fleet Corporation's merchant vessels came first. The matter was easily adjusted and work resumed.

Neither the construction or repair of ships could be carried on without a plentiful supply of workmen and these could be obtained only when ample provision had been made for housing and caring for them. This work was taken care of by the Department of Transportation and Housing and in this work a number of our men were more or less prominent, notably Frank Goodwillie, '89, Deputy Chief of Production, James W. Welsh,

EMERGENCY FLEET CORPORATION

'03, Engineer of Passenger Transportation for the New York District, Arthur A. Shurtleff, '94, Town Planner, Frederick Mathesius, Jr., '02, Executive Assistant to Chief of Construction, C. H. Thexton, '16, Supervising Engineer, and D. H. Perkins, '88, Assistant Supervisor of Design.

Goodwillie had charge of the general management of the housing facilities at all shipyards throughout the United States, involving the expenditure of something like sixty-five million dollars in providing some ten thousand permanent houses, fifteen hotels, thirteen apartment houses, together with the necessary land development and public utilities connected with them. Welsh's work was that of financing the construction and improving transportation facilities for the shipyards for the New York District, his work in this connection being very similar to and closely associated with that of Gardner Wells, '91, of the Housing Corporation. (See page 337.) Some of his methods were rather



APPRENTICE SEAMEN AT LIFE-BOAT DRILL ON A TRAINING SHIP

unique; they included the charter and operation of former passenger excursion steamers in New York Harbor, which carried a daily total of eighty thousand men to the yards, the operation of street cars by the workers themselves during the rush hours, thereby effecting a considerable economy in labor.

In addition to these, the usual methods of increased terminal facilities and special steam railway service were also utilized. In six weeks it was made possible for forty thousand men to work in the shipyards throughout New York, where the previous number had been certainly less than five thousand.

Shurtleff as a town planner was also connected with the United States Housing Corporation and planned a number of projects at Bridgeport, Conn., Newport, R. I., Stamford, Conn., and elsewhere.

Mathesius had general supervision of some twenty-one projects on the Atlantic coast and Great Lakes. Thexton served in the office at Philadelphia, exercising super-

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vision of cost and progress of all projects of the Housing Corporation. He states that there were in all twenty-six of these, extending from Bath, Maine, to Jacksonville, Fla., and westward to Manitowac, Wis. The total program included 8,892 single houses, 86 apartment houses, 4 apartment hotels, 12 dormitory hotels, 60 dormitories, 8 blocks of stores, 20 cafeterias and dining rooms, 124 miscellaneous buildings. The entire program was managed from the central office of Goodwillie at Philadelphia; material was ordered, contracts let, engineering details agreed upon and costs kept.

HOUSING PROJECTS

The change from peace to war involved more than a change of occupation and industry. Not only did thousands of men and women lay aside those trades and pursuits to which they were accustomed, to embark upon new occupations; a veritable migration of the population was necessary. The war plants, particularly those for shipbuilding, shell loading, explosive manufacture and the production of gases, were placed as a rule far from populous districts. This condition entailed the provision of housing facilities and for this purpose under the Department of Labor the United States Housing Corporation was formed.

A large number of Tech men were associated with this enterprise. Several have already been mentioned, notably Leonard Metcalf, '92 (see page 315), George D. Hall, '01 (see page 318).

There were many more, among whom may be mentioned T. E. Videto, '97, Edward W. Donn, Jr., '91, and S. Winthrop St. Clair, '01. The work of these men and their associates was for the most part more or less alike. Videto served as assistant manager of the Construction Division of the Corporation and has given a brief account which may serve to show the size and nature of the work: "Beginning with an appropriation of one hundred million dollars, authorized by Congress in June, 1918, contracts had been awarded or were ready for award in sixty-four localities, from Maine to California, providing housing for more than twenty-two thousand families and eleven thousand single workers, while in many of these localities the work was well under way; the first contract of eighty-five houses was completed in December. In most instances, the provision for housing required the construction of streets, sewers, water and lighting systems and other public utilities necessary for complete new development.

"Following the armistice many contracts were cancelled and others reduced in size where practicable, so that housing for but 6,000 families and 8,000 single workers was actually completed in 25 different localities.

"The Construction Division obtained bids, prepared the contracts, directed and supervised the work in the field, kept cost records, procured and expedited the materials and approved all payments, turning the completed houses over to the Operation Division, where ready for occupancy."

Donn was the architect for the housing project for the Naval Proving Ground and Smokeless Powder Factory at Indian Head, Md., a project which included about three hundred miles of streets and sidewalks with the usual utilities, one hundred six-room houses, eight dormitories for thirty-three men each, eight family apartment houses, a public school, an auditorium, a fire engine house and a number of other structures. Donn was also architect for the project at the Naval Proving Ground on the Machodoc Creek, and also for the dormitories and apartment houses for the Bureau of Standards at Washington.

St. Clair served as assistant superintendent of the project at Bridgeport, Conn., and at Bath, Maine. The former improvement was the largest actually erected during the war; altogether five different sites were handled and houses were provided for at least one thousand families or between four and six thousand people. This project was of a practically permanent character, including brick houses with slate roofs, permanent sewer system, gas and electric lights. Many serious strikes occurred, but nevertheless the work was carried forward at such a rate that at the date of armistice it was decided to complete the project, when most similar ones were abandoned.

HOUSING PROJECTS

A very considerable portion of the work of the Housing Corporation was carried on through the agency of consulting engineers. Thus, we find that the firm of Rankin, Kellogg & Crane, composed of John H. Rankin, '89, Thomas M. Kellogg, '87, and Edward A. Crane, '89, handled a number of very large projects. Among these perhaps the two most important were the housing project for the navy yard employes at Philadelphia, known as "Oregon Avenue," or "Philadelphia Housing Project 503," another at Penrose Avenue known as "503-A," and a third at Eddystone, Pa., known as "Number 1635."

These projects called for a total expenditure of fifteen million dollars, the smallest one, that of Oregon Avenue, including some six hundred and fifty houses and fourteen stores, besides various other buildings of a miscellaneous nature.

Frederick G. Bennett, '05, also served as a supervising engineer, representing Hill & Ferguson first at Camp Merritt, N. J., and later for the Housing Corporation at Norfolk, Va.

Another phase of the Housing Corporation was that of providing transportation facilities. In certain cases it was unnecessary to construct buildings if towns already built could be put in close communication with the works. In others the additional construction could be materially reduced by improving the transportation facilities. These matters were placed under control of the Transportation Division of which Major Gardner F. Wells, '91, served as manager. Wells, ever since leaving the Institute had been engaged in electric railway work, being connected in recent years with the Stone & Webster Corporation. In December, 1917, he was commissioned a major in the Ordnance Reserve Corps, but his services were so urgently needed in the Transportation Division of the Housing Corporation that he resigned his commission and took up work with the latter. The work of the division included the installation of special steam and electrical train service for war workers; the rearrangement of steam and electric railway schedules; the financing of necessary electric railway extensions and additions; and the construction or supervision of construction of these extensions or additions.

Special steam trains to provide transportation for war workers were supplied in various parts of the country. The Railroad Administration established an especially low tariff for munition and shipyard workers, and in many instances the Housing Corporation granted still lower rates, absorbing the resulting differential. At least 8,000 people were cared for in this manner at a cost at the rate of approximately thirty-five dollars per year per man.

The average cost of housing a war worker in a dormitory completely equipped and furnished with cafeteria was \$550, while the cost of housing workers in homes built especially for them was from \$3,500 to \$5,500 per house. On this basis it will readily be seen that, through transportation improvements, thousands of dollars of investment were saved, and millions of dollars would have been saved had the war continued another year.

In order to provide necessary facilities many problems had to be solved; for example that caused by the general shortage of cars. Perhaps the most difficult task was that of providing for the rapid entraining and detraining of the thousands of workmen employed at the great munition plants, notably at Bridgeport, at the Watertown Arsenal, Boston, at the League Island Navy Yard, and Frankford Arsenal, Philadelphia. The methods adopted included double tracking, the construction of loops and crossovers, terminals and particularly arrangements for the latter which would provide most rapid service during the change of shifts. Altogether some \$15,000,000 were appropriated for this work, of which, however, only about \$6,500,000 were actually spent.

In the Transportation Division much work was handled by Consulting Engineers and in this capacity A. L. Drum & Company, headed by A. L. Drum, '96, handled a number of important projects. Drum also did a great deal of work of a similar nature for the Shipping Board, but the projects are so closely allied that it is difficult to treat them separately.

The work performed for the Shipping Board consisted of investigating and originating plans for the improvement of street railway transportation service to twenty-eight shipyards employing 70,100 men and requiring an increase of 67,000 men. At these locations the service requirements of war industrial plants were also dealt with and covered



A TYPICAL ALL-AMERICAN CREW

the employment of about 40,000 men. The street railway transportation service to the Hog Island Shipyard was planned by A. L. Drum & Company, providing a capacity to move more than 20,000 employees in one hour with two and three-car train units, and in fact the actual movement from the Hog Island Yard was over 15,000 employees in three-quarters of an hour.

The work performed for the Housing Corporation consisted in investigating and originating plans for the improvement of street railway transportation service to forty war munition plants, employing 460,000 men, located at twenty-seven cities throughout the United States.

Acting on the recommendation of A. L. Drum & Company, the Shipping Board made loans to street railway systems for additional cars and extension of lines for war workers of \$5,200,000 and the Housing Corporation made loans of \$4,065,000. The contracts under which these loans were made were drawn up by A. L. Drum & Company and were designed to secure to the Government the value of its loans and to protect the street railway system against any heavy loss due to war emergency service and the excess cost of the construction and equipment. Under this form of contract the Government advanced to the traction companies the funds required for the extension of tracks, additional power supply and additional cars required to improve the services to the war plants, charging five per cent interest on the full amount of the loan with the provision that within from one to three years after the proclamation of peace the physical property covered by the loans should be appraised at its value for street railway service at that date and the amount of such appraisal should be repaid to the Government by the traction companies over a period of five years. The terms of these contracts submitted to Secretary of War Baker and Secretary of Labor Wilson met with their approval before becoming effective.

Drum was a member of the committee of four appointed by the United States Housing Corporation to construct the proposed city of five thousand houses of Neville Heights, located in the McKees Rocks district of Pittsburg, and planned to house the war workers of the proposed eighteen-inch gun plant under construction on Nelville Island in the Ohio River.

EMPLOYMENT SERVICE

It is interesting to note the conditions under which this work was performed. The service of the engineering employees of Drum & Company was charged to the Government at cost, while the service of Mr. Drum himself as a consulting engineer was given without charge.

EMPLOYMENT SERVICE

In spite of housing and transportation improvements, one of the severest problems which faced the Government at the outbreak of war was that of obtaining skilled workmen in every trade and profession. There were many men in the country skilled in the work closely allied to that which was to be undertaken, but these men were associated with peaceful industries in various places, and there was no way by which the Government could locate them and obtain their transfer to points where they were needed under war conditions. Probably the first effort to remedy this condition had been made in the year 1915 when, through the initiative of a number of American soldiers of fortune in Mexico and South America, an organization was formed known as the American Legion. This organization undertook to obtain a card catalogue index of all men in the United States who were willing to serve the Government in any capacity whatever in case of war. It is known that a great number of Tech men were members of this organization. Its files, however, are no longer available and only a few members can at present be located. This movement attracted considerable attention, and the files were ultimately taken over by the Government, but do not seem to have been made use of until late in the fall of 1917.

Other attempts have been mentioned, particularly that of the Institute directed by I. W. Litchfield, '85, and those undertaken by Lucius K. Russell, '86, and Calvin W. Rice, '90. Another effort along the same line was the organization of the United States Public Service Reserve — a movement somewhat similar to the American Legion just mentioned — in the membership of which were included not only men but also youths below military age who might be able to fill the position of men, thus relieving them for the army.

In July, 1917, the Department of Labor determined to take over the Public Service Reserve. Mr. Litchfield was placed in charge of the Technical and Engineering Division of the Public Service Reserve Board, being one of five associate directors and undertook the organization of this division. The files of the American Legion, although at this time in Washington, do not appear to have been accessible, and as a result the only available information of this type was contained in Litchfield's index of Technology's resources, and for three months the division operated with no stock in trade whatever except the Technology index, which by permission of the Massachusetts Institute of Technology Committee for National Service had been placed at the disposal of the Government. Gradually, however, the facilities at hand increased, as engineering societies formed indexes and made them available.

In January, 1918, the Public Service Reserve became part of the United States Employment Service, which had previously been handled as a portion of the Immigration Service but which now became a separate division of the Department of Labor. It expanded with great rapidity and by January 31, 1918, in addition to a reserve of boys between the ages of sixteen and twenty, there were 30,000 skilled workmen indexed.

The work now grew by leaps and bounds; by April 30 the bureau had placed 265,000 shipyard workers, and by June 15 it was supplying 6,000 men per day to farms, munition plants and shipyards. Finally, upon June 17 the President requested that employers throughout the United States place all orders for unskilled labor through the Employment Service. In six months 101,000 men were placed in permanent positions upon farms alone.

In June reorganization took place and five divisions were formed, namely, Control, Field Organization, Clearance, Personnel, and Information and Education. Of these divisions, Tech men headed two, I. W. Litchfield being chief of the Clearance Division and Roger W. Babson, '98, chief of the Information and Education Division.

A letter written about this time by Mr. Litchfield illustrates very neatly the type of work in which he was engaged. He says: "The demand for machinists and toolmakers

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is only second to that for common labor. There is apparently a deplorable lack of these trades to supply the tremendous demands upon us. We are instituting a national investigation of the available men in these trades throughout the country with the idea of ascertaining the number and locations of those who are employed in what are obviously non-essential industries.

"We have made cursory investigation in a few localities devoted largely to pressing war work, and the general report is there is only about seventy-five per cent production because of the lack of skilled labor. This condition must be remedied, and I am writing this as a preliminary to a concerted plan for securing greater local co-operation, which we hope to take up later through the reserve."

Subsequently Mr. Litchfield occupied other positions in the service, including those of chief of the Skilled Labor Section and chief of the Professional Section. His selection for this work would appear to have been largely due to his experience gained in classifying Technology's alumni and in devising a system for cataloguing professional men, a system which has since been adopted by the Division of Industrial Co-operation and Research of the Massachusetts Institute of Technology.

Associated with Mr. Litchfield in his earlier work was John C. Frazee, '06, who, as federal director and superintendent for Pennsylvania, did much work in enrolling men as members of the reserve.

The Information and Education Division, of which Roger W. Babson, '98, was director, dealt with a very different problem, its chief duty being not to get volunteers but to increase the efficiency of those already on the work by building up the morale. It will be recollected that throughout the war considerable difficulty was experienced in getting the greatest efficiency out of the workmen: The entire population was excited and restless; there were rumors of immense wages being paid here and there which tempted the men to leave one job and go in search of another. The labor turnover was tremendous, with the result that practically every industry in the United States was running continually with green men. The workmen were sincerely patriotic but had no idea of the tremendous losses of time and money which were being occasioned by their instability. It was Babson's work to set this right by educational work among the laborers, which would show them the part they were playing in the war and how that part could best be played.

A little later a further reorganization was effected by which the Division of Information and Education became a separate service of the Department of Labor, with Babson as director general. The work was now enlarged to include not only the distribution of posters and pamphlets but also general publicity work through speakers and printed matter and work of various kinds to improve the morale and eliminate friction and misunderstanding between employer and employee.

Closely associated with Babson in this work was Professor D. R. Dewey of the Economics Department, who was appointed at Babson's request director of the Economics Section of the Information and Education Service. Professor Dewey acted chiefly in the capacity of adviser, particularly in studying economic conditions at home and abroad and in keeping Mr. Babson and his associates informed as to how the problem of labor and production was being handled successfully in all parts of the world. It was very largely Professor Dewey's work along this line which first brought to public notice the advantage of the "Shop Committee" system, a system which at that time was regarded as almost revolutionary but which has since become more or less an accepted phase of the American industrial life. Professor Dewey was also able on several occasions to give valuable advice in connection with labor disputes in the settlement of strikes, being able to demonstrate to both parties the economic justice of certain demands by the other.

Professor H. W. Tyler, '84, was also associated with the Employment Service. His first work was that of collating data regarding labor conditions at the time when the service first undertook to control the labor supply of the entire country. However, when the reorganization took place by which the Information Service became a separate branch, Dr. Tyler resigned from the Employment Service in order to co-operate with Mr. Babson

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and Professor Dewey. A considerable share of the work of this service was also carried on by F. T. Miller, '95.

VOCATIONAL EDUCATION

As is pointed out in an earlier chapter, before the declaration of war little progress had been made toward assigning to education a place in the military preparations of the country. No sooner, however, had war become a fact than the necessity for special education as a war measure became very apparent. As we have already seen, the Institute was called upon to train many specialists for the Government at short notice, and many other colleges, universities and technical schools were also engaged in this work. Almost every department of the Government quickly felt the need of an educational organization, and as a result several independent boards and committees had charge of the work for various departments. In the Army, the Education and Training Section of the General Staff was organized to carry on the general problems involved in military education. An Education and Training Section was made part of the Shipping Board organization, and an Education and Information Division became one of the chief branches of the United States Employment Service, while finally special measures were inaugurated to care for the rehabilitation of the wounded and injured. The chief organization created to deal with this work was the Federal Board of Vocational Education. This Board had been established by act of Congress on February 23, 1917, and in accordance with the act consisted of the Secretary of Commerce and Labor, Secretary of Agriculture, the United States Commissioner of Education, and three citizens representing manufacturing interests, agricultural interests and labor interests. Appointments to the board were completed in July, 1917, and James P. Munroe, '82, was selected as the representative of manufacturing interests. He was exceptionally well qualified for the position, having had experience as a manufacturer, as president and treasurer of the Munroe Felt and Paper Company, and having for some years served as Secretary of the Institute Corporation. He had taken an active interest in technical and vocational education, and written many articles upon the subject. It is not surprising, therefore, that Mr. Munroe ultimately came to serve as vice-chairman of the Board.

The work as originally outlined in the Smith-Hughes Act was to supervise the expenditure of some seven million dollars in the promotion of vocational education throughout the United States. Each state was expected to make an appropriation for vocational education and submit a plan to the Board. When this plan had been approved, federal funds equal to the state appropriation were to be made available to each state. This required rapid work on the part of the Board, for during the last ten days of August it was necessary to hold conferences with representatives of no fewer than forty-two states, for the purpose of taking up the progress affecting these states, formulating definite statements of policies to be adopted, examining the plans submitted by each state, criticizing the plans and submitting the revised programs for final adoption. By December 1, this phase of the work was practically completed, and the educational work had been taken up.

It will be noted that the Smith-Hughes Act had been passed before the declaration of war, and it was not, therefore, originally intended that it should be a war measure, the normal functions of the Board being merely to promote vocational education throughout the United States. With the outbreak of war, however, the work took on a new interest, for it was immediately found that the organization of an army required an immense number of men trained in certain vocations, which were not immediately available. A typical example was the demand made by the Signal Corps for fifteen thousand radio operators. To provide these specialists some seven hundred vocational schools and colleges were mobilized, a task which included determining the needs of the various governmental departments, the selection of institutions best suitable for training, together with an estimate of the capacity of each, the drafting and award of contracts, and finally general supervision of the instruction. This matter was immediately attacked and with such success that during the first six months nearly one hundred thousand specialists were trained.



INSTRUCTION IN SAIL-MAKING FOR APPRENTICE SEAMEN OF THE MERCHANT MARINE

In January Mr. Munroe presented to Secretary Baker a plan providing for a Committee on Education and Special Training of the War Department, and it was from this committee that the Education and Training Section of the War Plans Division of the General Staff grew up. Munroe acted as a member of its Advisory Committee during the period of organization.

There was also an urgent demand for specialists in shipbuilding work, and here again special training was necessary. The Federal Board co-operated with the Shipping Board in determining the various fundamentals of the shipbuilding trades and of those most closely analogous to them, and working out what special intensive training would be necessary to fit a man qualified in the latter to become a shipbuilder.

Another matter which early claimed the attention of the Board was the scheme which at that time was being worked out by the office of the Surgeon General for the vocational rehabilitation of crippled soldiers. This involved studies regarding the fundamental requirements both in physical and mental ability for various trades and professions, together also with a close study of the psychological and physical effects produced upon the men when called upon to return to competitive life.

On June 27, 1918, the Smith-Sears Bill was passed by Congress which placed the work of rehabilitation entirely under the Board, and from that date to the present, Munroe's principal work has been in caring for injured and crippled men. Approximately 100,000 men were discharged from the army because of physical disability. Of these some 80,000 were able to return to their own occupations with but slightly diminished efficiency. About 10,000 are hopeless cases for whom nothing can be done. The Board's great problem lay with the remaining 10,000 who were so badly injured that they could not return to their former pursuits, but who might yet hope to acquire new trades. This problem was an exceedingly difficult one, for the wounded and crippled soldier is faced by many dangers besides those coming directly from his decreased physical ability.

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In particular, it was feared, that men who remained too long in hospitals or out of work would become victims of self-pity, or that their wounds would stiffen to such an extent that they subsequently would be unable to recover. In order to interest them as quickly as possible, circulars were sent out to the men themselves, to their relatives and to prospective employers urging them at once to take up the new work. The task of the Board was further complicated by the fact that there was a great demand for labor at the time in certain industries, and many of the men quickly found comparatively good jobs at satisfactory wages, and were disinclined to take further training, not realizing that the work in which they were engaged was closely connected with the war, and that within a few months, operations would have ceased and they would be out of a job. The circulars stressed that fact that the Board was not only desirous of giving education to the men, but of finding permanent jobs for them, following them up and helping them for several years if necessary until they were thoroughly able to stand upon their own feet.

Mr. Munroe and his colleagues of course met with a certain amount of opposition and criticism, but the work has been pushed forward, appropriations have been obtained, and it seems a safe prediction that ten years from now most of these ten thousand men will have found some congenial employment at good wages, and will be performing their duties in the Nation's industrial life as previously.

When the Education and Special Training Section of the War Plans Division of the General Staff was created, an advisory committee of five members was appointed. Of these two were Tech men, namely Doctor Charles R. Mann of the Institute Staff and James P. Munroe, who, as we have seen, proposed the formation of the Section. It was this section that subsequently undertook the work of co-ordinating military needs through the promotion of the Students' Army Training Corps.

Attention has already been drawn to the prominent part taken by Tech men in this last work (see page 53), for it will be recollected that Doctor Maclaurin of the Institute became Educational Director of this corps. The work of Professor Frank Aydelotte in connection with the War Issues Course has already been mentioned, (see



INJURY TO THE BOILERS OF SOME OF THE GERMAN LINERS REPAIRED BY R. D. GATEWOOD, '06, AT PANAMA
THE DAMAGE WAS CAUSED BY DRY FIRING

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page 52). Professor Henry P. Talbot of the Department of Chemistry also acted as a consultant in working out courses to be given to members of the Training Corps, being one of the two men who formulated the courses in chemistry. In addition Professor Talbot was serving upon the Advisory Board of the Bureau of Mines relative to gas investigation. This position was also one of responsibility, although, as Professor Talbot himself states, the organization of the Bureau was so efficient that little work upon the part of the Advisory Board was necessary.

The Shipping Board was also obliged to develop an educational organization, and here again a Tech man was placed in charge. This man was Louis E. Reber, '85, whose work in connection with the educational program of the American Expeditionary Forces has already been mentioned. (See page 225.) In August, 1917, Reber had become associate director, Public Reserve, United States Labor Department, being associated with Roger W. Babson, '98, Professor D. R. Dewey, I. W. Litchfield, '85, Professor H. W. Tyler, '84, and other Tech men. In April, 1918, he became director of Education and Training for the Emergency Fleet Corporation. He has given us no account of this work, but Proctor L. Dougherty, '97, who served as district representative for the Education and Training Section in the New York District, has described it as follows:

"The Education and Training Section of the Emergency Fleet Corporation was organized under Admiral Bowles, Manager of Ship Construction, September 12, 1917, at which time there were thirty-seven steel shipyards and twenty-four wood shipyards employing about fifty thousand men. Instructions were issued to prepare to train men so that the number of skilled workers would be increased tenfold. At the time the armistice was signed eighty thousand green men had to be trained into skilled workers which represented an increase of about three hundred per cent in the skilled tradesmen in the shipyards under the jurisdiction of the Emergency Fleet Corporation.

"The method of organization was briefly as follows: A district representative was placed in each district office to represent the Director of the Section whose home office was in Philadelphia. This representative was in direct supervisory charge of the training work carried on in the various shipyards in his district. The New York district for instance, included about fourteen companies ranging from Port Jefferson, L. I., as far north as Kingston, N. Y., to Newark, N. J. In each shipyard having government contracts where the training system was adopted there was a director of training in immediate charge who was an employee of the shipyard company. Under him came instructors who were also employees of the yard and who collectively represented the different trades of riveting, holding-on, bolting-up, shipfitting, chipping and caulking, drilling and reaming, and electric welding. Each instructor had assigned to him from six to ten green men who were trained in one trade in from two to six weeks, dependent upon the work and the proficiency of the learner. The learners received their instruction while doing actual production work on ship sections on the ground, on the ways or on the ship after launching while in the wet basin.

"In order to fit the instructors to teach the learners the yard was asked to select a few of their best mechanics from the various trades, who were given a six weeks' course of instruction in the art of teaching their trade by a staff instructor from the Emergency Fleet Corporation. All the expenses of the latter were paid by the Government. The method used by the staff instructors was that previously outlined by Charles R. Allen of Massachusetts.

"By this means the Training Department in each shipyard was enabled to turn over a certain number of trained men in the various trades every month to the Production Department. At the Submarine Boat Corporation, for instance, about one thousand men were turned over to production every month who previous to coming to the yard had been policemen, tailors, liquor dealers, waiters, bricklayers, and carpenters; in fact of almost every conceivable occupation."

When the Smith-Sears Act was passed and the Federal Board of Vocational Education commenced looking after the rehabilitation of the crippled soldiers, this work was turned over in part to various institutions throughout the United States. A number of men found capable of higher technical training are at the present time pursuing their

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studies at the Institute. Many other schools took up the work throughout the country, among which may be mentioned the Dunwoody Institute at Minneapolis, Minn., of which William H. Bovey, '94, is president of the Board of Trustees. At this institution some 12,000 men were trained as specialists for the Army and Navy earlier in the war, particularly as carpenters, coppersmiths, bakers, radio operators and aviators. Subsequently the school took up rehabilitation work and some of its records serve to illustrate the methods pursued by the Vocational Board. Perhaps the most interesting work was that of determining for what jobs the various men were fitted, and they illustrate very well the problems with which the crippled soldier is faced. Thus we find one man after having taken a short "try-out" course, advised to transfer to the course in architecture at the University of Minnesota. Another after a "try-out" was sent to a local manufacturing company. Another was returned to the hospital as he was not yet able to undertake work. The training has been found difficult because many of the men have little idea of the length of time necessary to fit themselves as skilled workmen. Sometimes it is found best under these conditions to let a man go out and work a little, when only half prepared, as a brief experience under these conditions generally convinces him of the necessity for further training.

Rehabilitation work by Tech men has not been confined to the United States, for Frederick H. Sexton, '01, is serving as vocational officer for Quebec and the Maritime Provinces of the Department of Soldier's Civil Reestablishment. His work here is practically identical with that of Munroe and Bovey, and many hundreds of soldiers have already been able to once more take up civil occupations.

In the American program for the vocation for rehabilitation, the questions as to whether a man was entitled to aid was determined by the War Risk Insurance Bureau. No Tech man appears to have been associated with the work of vocational education as members of this bureau, but several served in it in connection with other work. Among these was Professor A. T. Robinson of the English Department, who, during the summer of 1918 spent some two months in reorganizing the Bureau's system of correspondence to gain greater efficiency. In particular he made an analytical study of the various form letters with a view to determine what form letters should be dropped, what additional form letters should be made up, what additional form letters should be omitted, what additional letters should be written and finally revised and rewrote the entire series. A number of these letters are still in use by the department.

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Some mention has been made in an earlier chapter of the work done by our men in working out new weapons of various types. Many of our men worked also upon research and investigation problems of devising new processes which might aid in the development of these weapons or which might after the cessation of hostilities form the basis of new industries. All of the government laboratories, such as those of the Bureau of Standards and Bureau of Chemistry, were engaged in this work, being aided by such institutions as the Geophysical Laboratory of the Carnegie Institute, the Smithsonian Institute and many industrial laboratories throughout the United States. The Bureau of Standards was given a variety of problems to solve, including those connected with the development of airplane bomb-dropping sights, photography, signalling, the detection of submarines, the detection of airplanes and a number of similar problems of less immediate military bearing. The staff of the Bureau was greatly augmented and it became a sort of gathering place for physicists from the entire United States.

A considerable number of Tech men served in the Bureau, of whom the following may be mentioned: Mayo D. Hersey, '09, Physicist and Chief of the Aeronautic Instruments Section; Franklin L. Hunt, '09, Associate Physicist, and in the absence of Hersey, Chief of the Aeronautic Instrument Section; Associate Physicists, Francis B. Silsbee, '10, and Walter F. Stutz, '04; Frederick W. Grover, '09, Radio Expert; a number of others served as assistant physicists, assistant engineers, and laboratory assistants.

Hersey and Hunt, as their titles indicate, worked upon problems connected with

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the development of aeronautic instruments of all kinds and types. In this work they were aided by George E. Washburn, '09, Assistant Physicist; Leslie A. Hoffman, '17, Assistant Physicist and Engineer, who later entered the Air Service; and Frederick P. Upton, '16, Assistant Physicist, who later entered the Naval Reserve Flying Corps; and a number of others.

Perhaps the most interesting work which came to many of these men was that assigned to Hoffman. Among the instruments upon which the Bureau was working were oxygen helmets, gyroscopic stabilizers for airplanes, and automatic recording instruments. Hoffman had already qualified as a military aviator and was only prevented from entering active service by rulings of higher authorities which demanded that he remain on duty at the Bureau of Standards. He was assigned the work of conducting practical tests. In



DAMAGED BOILERS FROM GERMAN SHIPS BEING REPAIRED AT BALBOA UNDER DIRECTION OF R. D. GATEWOOD, '06

developing the oxygen apparatus he frequently worked at twenty-one thousand feet and over; no easy task on a cold day.

Silsbee, worked on the improvement of spark plugs. It had been found that the extremes of temperature and pressure encountered in the various airplane engines, particularly the Liberty, required a higher standard in the matter of plugs than any which had hitherto been obtained. The researches were very successful and resulted in such improvements as to render long distance flights such as that of the NC boats quite practical and comparatively safe.

Edward C. Groesbeck, '06, worked on the development of steel helmets for the army. This work involved not only the development of the most efficient armor plate, but also a study in design of a helmet which would be comfortable to the wearer. The investigators even went to the point of looking up the ancient models used during the Middle Ages, in order to get a protective covering which would be as well balanced as possible.

Burton L. Cushing, '13, was engaged in testing materials intended for all sorts of

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uses, including parts of airplanes, heavy guns, balloons, and welded ship plates for the United States Shipping Board.

R. V. Kleinschmidt, '18, was in charge of the investigation of radiators, while Helen Kleinschmidt, who attended the Institute in 1916 and 1917, did work in high precision weighing of standards of mass, which, while perhaps not strictly war work, nevertheless contributed, since this material was subsequently used for standards in various research laboratories throughout the country.

Another very important section of the Bureau of Standards was that dealing with gages. The section was divided into three subdivisions; one involving laboratory work was in charge of A. E. Hanson, '14. The duties of this section were to test the master precision gages which were used for calibrating measuring machines throughout the United States, upon whose accuracy all work involving the manufacture of machinery at widely separated points for ultimate assembly was contingent and upon which the ability to make interchangeable parts of all types of machinery depended.

It was in this section that the Hoke Precision Gage was perfected and a number of other improvements developed. In addition to this, the section acted as a clearinghouse for master gages for the Ordnance Department and Motor Transport Service, gave instruction to government officers and gage checkers and undertook other work of less direct bearing upon the war.

As has already been stated, the work of the Bureau of Standards was closely co-ordinated with that of other bureaus and laboratories and many of the problems were solved by the combined efforts of all. One of the most interesting problems presented to the United States at the outbreak of war was that of obtaining a supply of optical glass. One of our men who was set to work at this problem was Robert B. Sosman, '04, Acting Director of the Geophysical Laboratory of the Carnegie Institution. An idea of the work can be gained from the following extract from the United States Official Bulletin of June 21, 1918.

"The Geophysical Laboratory of the Carnegie Institution of Washington was called upon to aid in the production of high-grade optical glass. A party from the laboratory was stationed at the plant of the Bausch & Lomb Optical Company in April, 1917, and for seven months all efforts of the laboratory were concentrated at this plant. At the end of 1917 the essential details of the manufacture had been developed and glass in considerable quantities was being produced. The efforts of the laboratory were then extended to the Spencer Lens Company and to the Pittsburgh Plate Glass Company, Pittsburgh, Pa. During this period the Bureau of Standards rendered effective aid.

"At the present time, as a result of co-operation between the manufacturers and scientists, large quantities of optical glass of the kinds needed for military fire-control instruments are being produced of a quality equal in practically every respect to the best European glass."

A number of industrial laboratories were engaged in this work, among them that of Wadsworth, Howland & Company, in which Arthur Howland, '91, made an exhaustive study of color and of the relationship between different colors. In this connection he invented and perfected a comparative color photometer. This machine was used in investigating the coloring matters in glass and was particularly responsible for the production of colorless optical glass. Howland also did work relative to camouflage upon ships.

One of the most difficult problems was that of producing barium crown glass. The particular importance of this material lies in the fact that without it is absolutely impossible to manufacture an airplane camera or any other camera with wide aperture and flat field of view without sacrificing the possibility of instantaneous photography. This problem was taken up by Doctor Elihu Thomson who assigned to the task a portion of the staff of the research laboratories of the General Electric Company at Lynn. Unfortunately the young man who had direct charge of the work was taken ill with influenza and died before being able to place the glass upon a basis of commercial production. Some of the best samples in the United States, however, were produced.

Closely allied with the work of the Bureau of Standards and Geophysical Labora-

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tory was that of the Bureau of Chemistry of the Department of Agriculture, and one of our men, Sidney D. Wells, '07, made a discovery in this work which was of tremendous importance. For a long time it had been known that the Germans had practically no supply of cotton. Nevertheless, they continued to manufacture excellent nitro-cellulose powder which was proved to be, unpleasantly, accurate and effective when used by their artillery.

In spite of this fact every attempt to produce gun powder from materials other than cotton had proved a failure in the United States and the officials of E. I. du Pont de Nemours & Company, the chief manufacturers of military smokeless powder in the United States, were exceedingly skeptical as to the possibility of ever doing so; their own experiments had shown that when wood pulp was bleached sufficiently to resemble cotton in color it was found that oxycellulose was produced which made nitration difficult or impossible. Wells, however, after considerable work came to the conclusion that this bleaching was unnecessary. It was found that when the pulp from long and coarse fibre woods was properly treated it met every physical and chemical requirement except that of color. Further investigation led to the belief that the color was due to minute quantities of some comparatively inactive coloring agent which would not adversely effect either thorough nitration or subsequent stability.

Commercial powder companies still hesitated to take up the process but the Ordnance Department made a trial run at the Picatinny Arsenal. Several five-hundred-pound lots were manufactured with most satisfactory results and the finished powder was found to meet every requirement. Surveillance tests of course have not as yet been completed, as these require some years. This process may be used in emergency in case of another war. It is interesting to note that the details of the process permit the pulp to be put in shape in a much shorter time than that used by the Germans, and that when prepared it is in much better shape for nitration.

Wells did much other work both in rendering types suitable for nitration and in preparing absorbent material for gas masks, but unfortunately most of his work was of a confidential nature.

Some interesting work was done at the laboratories of the Institute on problems assigned by the Shipping Board. It will be recollected that electric welding throughout the period of emergency ship construction attracted considerable attention because of its possibilities as a means of quick repair, and because it obviated the necessity of rivets under certain conditions. Professor Ralph G. Hudson, '07, of the Department of Electrical Engineering performed some very interesting experiments and succeeded not only in demonstrating the true nature of the process but also in making some very notable improvements in the design of electrodes for this purpose.

THE STATE DEPARTMENT

A comparatively small number of our men report themselves as having been in the service of the State Department. Some of them have been mentioned in connection with other activities, as for instance the story of George W. Bakeman, '13, who served with the Red Cross Mission in Roumania. His regular duty was that of special assistant to the American Ambassador to Russia. Preston M. Smith, '05, was engaged in work for the State Department in Spain, but we have no account of it; it will be recollected that Edwin W. Bonta, '07, (see page 299) was engaged in work as a consular courier in Russia.

Another of our men who was connected with the State Department and who had a rather difficult time in getting out of Russia after the Bolsheviks gained control was Fred W. Draper, '95, who was serving as a special agent of the State Department, having been charged with the duty of obtaining a supply of platinum for the United States.

Six months before the Bolshevik uprising, Draper and his companions realized what was coming. They collected the largest amount possible in order that the United States might have no lack of the metal so indispensable for delicate instruments. This was no easy task. The Russian mining industry was disorganized, those of the miners who were not at the front fighting were on strike or simply loafing. Nevertheless Draper and

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ONE HUNDRED AND TEN-FOOT SUBMARINE-CHASERS UNDER CONSTRUCTION IN A SMALL PRIVATE YARD

his party slowly gathered the necessary material. Here and there a small sack would be picked up in a mining district; a little more at a bank; some was obtained from private individuals. They were not the only purchasers in the field for the agents of all our allies had also sensed the coming danger, while secret agents of Germany were everywhere, endeavoring to buy up the entire supply.

At last twenty-one thousand ounces had been gathered and deposited in the Russian-English Bank on the Nevsky Prospekt. The situation had become so ominous that it was decided to gather no more but to ship what had been obtained. The matter was taken up with the express companies each one of which flatly refused to undertake such a shipment, as they regarded it as being nothing more nor less than a certain loss of two million dollars. As the material could not be expressed, Draper undertook to carry it through himself and accordingly on Tuesday, October 2, 1917, he set out. The worst problem was getting the treasure from the bank to the station; had any one of the thousands of people of the Nevsky Prospekt suspected the value of the material which was being transported, a battery of machine-guns would scarcely have protected it. The platinum was, therefore, packed in boxes each about two feet square and weighing from three hundred to three hundred and fifty pounds. Each was stamped with impressive governmental seals but otherwise gave no evidence of being anything unusual. No attempt was made to guard them or otherwise attract attention. As a result they reached the station safely but here a hitch occurred; the porters objected to the extraordinary weight of the packages. They were finally "persuaded" that the boxes contained "embassy documents." It was very lucky for Draper that the Russian peasant has little idea of specific gravity.

At last the train pulled out, but troubles had only begun. At Vologda the station was filled with deserters and demobilized soldiers who were intent on commandeering the train. They were a dangerous mob but still partially under the control of their officers who at last persuaded them to remain. Had they boarded the train they certainly would have investigated the boxes and looted them. Nine days of suspense followed and then the train arrived at Irkutsk which was in possession of two regiments of soldiers, drunk with vodka, new found power and freedom. They were utterly irresponsible but as good luck

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would have it, contented themselves with commandeering not the train as Draper had feared, but merely the locomotive. A new one was obtained and the train went on.

At Irkutsk there were rumors of the depredations of the Chinese bandits of Manchuria. The bandits, however, gave little annoyance as compared with the Russian customs inspector at the Manchurian Frontier who refused to take Mr. Draper's word that the boxes contained "embassy documents;" he desired to inspect them, saying that his superiors would not otherwise be satisfied with his report. "Very well," replied Draper, "go and get your superiors." As he had no way whatever of either seeing or communicating with his superiors, and as he was a believer that a ruble in the hand was worth a thousand in a box, the declaration was finally accepted and the boxes went through to Vladivostok.

Here they were deposited in a bank but not safely deposited. The town was seized by a workingmen's council. Furthermore a rumor got afloat that a ton of platinum was in the town in the possession of an American. The precious stuff was finally loaded aboard a steamer, but the steamer was delayed and the treasure was carted back to the bank. Finally it was reloaded and the vessel sailed. In due time she arrived in the United States bringing a supply of platinum sufficient to provide contacts for many thousand magnetos and coils and for much delicate electrical apparatus which was absolutely essential to prosecution of the war.

Nerve racking as Draper's experience must have been it was tame as compared with that which befell Lee Hagood, '08. Hagood may be remembered by his classmates as a regular army officer who, through accident, had been so injured by the boom of a crane that he had been obliged to retire from the service. He took up work with the General Electric Company, and after an interesting career throughout the United States, in 1915 he had gone to Russia. When the United States entered the war he reported to the Military Attaché at Petrograd and became a member of the Military Mission, although he was still authorized to look after the interests of the General Electric Company, which, in 1917 had acquired an interest in the Russian General Electric Company which was supplying munitions and machinery for Russian war industries. A little later, just before the overthrow of the Kerensky Government, Hagood was asked to resign from the General Electric Company in order to become a member of the Michaelson Commission, and was appointed Assistant Military Attaché at Petrograd. After the Bolsheviki got control the Michaelson Mission disbanded; Hagood returned to his previous status as a retired army officer and once more endeavored to work in the interests of the General Electric. Speaking of his experiences he says: "The horror of this period in Petrograd is beyond description. Most of the people were without adequate food or heat. White bread or sugar could not be obtained in any hotel or restaurant. Hospitals and all the many charitable institutions had to be closed for lack of food. The saddest of all were the babies and children without milk or cereals. Everybody's money in the banks was confiscated by the Bolsheviki, and this placed thousands and thousands of people penniless. One could see fine looking men and women from the best families attempting to sell newspapers, or shovel snow.

"Having been relieved from duty as assistant military attaché and having returned to my status as a retired officer, not on active duty, I was free, at the time of the evacuation of Petrograd by the Allies in March, 1918, to escape the best I could.

"I made an unsuccessful effort through Finland, where a frightful civil war was in progress and the Germans were landing to assist the White Army. I then returned to Petrograd and escaped across Siberia, being about the last American to make it.

"In a hotel in Finland the Bolsheviki raided my hotel and searched my room. They failed to find out, however, that I had in my possession the famous 'Sisson Papers'; otherwise I would not be writing this. These papers were an exposure of the Bolsheviki negotiations with the Germans. I successfully got these papers to our Legation at Stockholm and they were afterwards published in America."

VOLUNTEER WORKERS

The story of Technology's graduates would not be complete without some mention of those who as volunteers undertook various types of government work of a more

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or less indirect nature to be sure, but which, nevertheless, had in the aggregate a powerful effect upon the conduct of that war. None of this work was probably more interesting than that connected with outwitting hostile spies.

Among those who were active in this work was Charles E. Lawrence, '96. Lawrence because of his age was unable to get into active service in the military or naval forces, and accordingly determined that his most useful services could be rendered through the American Protective League in watching suspected spies and protecting those unjustly accused or suspected. In addition to this work he enlisted in the police reserves as a sergeant, and later received a commission as lieutenant, being charged during the period of draft registration with patrolling certain districts of New York City. He also saw some active service during strikes. He was one of the few men connected with the American Protective League who received special diplomas from the Department of Justice.

Perhaps the most noteworthy piece of work along this line was that of Hal B. Fullerton, '79. Previous to the war he had been a member of the old "American Legion", which was composed of men who pledged their services to the Government in case of need, and with the outbreak of hostilities he took part in every possible activity which a man of his age could manage, and among other organizations he joined the American Protective League. He lived, and in fact still lives in what he describes as a "Hun hamlet" three miles from Camp Upton. His experiences were certainly most interesting. The place was a nest of spies. The postmaster was found to be a German agent. He was arrested; the charge was proved to the satisfaction of the authorities, and he was discharged and interned for treason and for permitting treasonable acts. A Prussian lieutenant masquerading as an American citizen was caught selling Iron Crosses to raise funds to carry on treasonable activities. Among Fullerton's townsmen was a national officer of the I. W. W. and this gentlemen and his associates kept the League busy. Altogether seven indictments on charges of treason were secured. Three attempts to wreck trains were also discovered and frustrated.



A PORTION OF THE NEVERS CUT-OFF — A PIECE OF RAILWAY CONSTRUCTION IN FRANCE UPON WHICH A NUMBER OF TECH MEN WERE ENGAGED

TECHNOLOGY'S WAR RECORD

Henry C. Stephens, '18, before entering the Field Artillery Officers' Training School at Camp Taylor, worked at the Bethlehem Steel Corporation's industry at Pennsylvania. On one occasion a spy succeeded in placing a bomb in the bottom of one of the ingot moulds into which the steel for fourteen-inch guns was being poured. The explosion which followed killed a number of men and Stephens was somewhat bruised and shaken up, but otherwise uninjured. S. H. Brockunier, '93, who was superintendent of Chateaugay Ore and Iron Co., Lyon Mountain, New York, states that most of his energy was expended in keeping German spies out of the plant. He personally caught one of them who was about to descend the shaft and jailed him. The spy problem was especially severe at the mine in question because over seventy per cent of the force in the plant were foreign born. Nevertheless, Brockunier by personal solicitation succeeded in raising over one hundred dollars per man among his subordinates for one of the Liberty Loans. Henry A. Mears, '85, also reports that he had some experience with hostile agents and was able to report on the doings of at least one "very dangerous Prussian" who appears to have been operating in and around Boston.

Sometimes spy-hunting proved more or less ludicrous and such a case is reported by Professor William L. Smith, '89, who says: "One of the most humorous incidents occurred when a report came of a suspicious and clandestine wireless antenna. The police routed me out together with my friend the District Radio Inspector and whirled us away to capture the Hun sympathizer, only to find that the Radio Inspector himself was the frightful suspect and the antenna was that of his own set at his new residence which enabled him to be continually on the job, during the hours he was not at his office, hunting out suspicious signals and locating their probable point of origin. Of course he discovered where the posse was heading some time before its arrival but I don't think one thousand dollars would have persuaded him to prevent the dramatic invasion of his peaceful domicile. As it was prior to July 1, 1919, it must be admitted that the damaged feelings of the sergeant of police and his men were entirely healed shortly after arrival.

Frank G. Burgess, '87, who served during the early years of the war in Paris as a correspondent for *Collier's*, was a member of an association of writers known as the "Vigilantes," who made it their business to write patriotic articles, articles on preparedness, anti-German propaganda, and articles to aid the various Red Cross and other "drives." Burgess was the originator of the famous "Liberty Ball," which was rolled from Buffalo to New York City in the Third Liberty Loan campaign, and it credited with having raised some millions of dollars.

Another most important civic duty during the war was service upon the various draft boards. A very large number of men who served on these boards have already been mentioned in connection with other work. It is unfortunate that they cannot all be mentioned, for work of a more difficult nature, or one requiring more conscientious application to duty is hard to conceive. Most of the stories connected with the draft which have come to light are of little general interest, but there is perhaps one contributed by David H. S. Tappan, '87, a registrar in Grassy Creek Township, Mitchell County, N. C., which is unusual. He says: "I was beyond the age limit of both drafts — am fifty-one years old and was in bad health at the time of the first and second drafts or I would have tried to enlist.

"We had a man in this county who concealed his age, which was the same as mine, and who enlisted and fought in the front-line trenches all through the war so as to be near his son, a boy of twenty-two years of age, who had enlisted also.

"They went 'over the top' together several times and came back unscathed — of such stuff is this mountain people made."

Perhaps after the work of the Draft Boards, the next most important volunteer work was that of raising various Liberty Loans. Nearly all the men who have previously been mentioned in civilian work took a prominent part in the Liberty Loan drives and there were a number of others. Perhaps the most noteworthy piece of work in this connection was that of George B. Glidden, '93, who was a member of the commission which, under the auspices of the War and Treasury Departments, visited England, Scotland, France and Belgium in the early part of 1918 to observe the war. He visited naval bases, ship-

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yards, training centers, the British Grand Fleet, and battlefields, in several sectors visiting the outpost line. He was under fire in Belgium and near Verdun, and also was present in Paris during the first four days of bombardment by "Big Bertha." Upon his return he took an active part in Liberty Loan and Red Cross drives, making use of the material gathered during his trip.

Charles R. Fletcher, '76, also played a prominent part in Liberty Loan work, particularly as member of the National Committee of the Lafayette Day celebrations which upon September 6, 1917, at one time celebrated the victory of the first battle of the Marne, and the birthday of Lafayette. Fletcher's work was chiefly in Los Angeles, where his committee succeeded in raising no less than four million dollars for the first loan.

Many other Tech men and women were engaged in every variety of volunteer work. Helen E. Keep, '98, was chairman of the Michigan State Committee of the National League for Woman's Service, which carried on an immense amount of welfare work of the most diverse nature throughout the United States. The work included a Social and Welfare Division which operated army and navy clubs in various places, entertainments arranged at numerous camps and munition production centers, canteens operated at a number of points, and many other activities.

Mrs. Arthur A. Shurtleff, (Margaret Homer Nichols), '03, whose husband has already been mentioned in connection with the United States Housing Corporation, was one of the founders of the Food Economy League, which among other things devised a means whereby the waste of butcher shops which would ordinarily have gone to soap factories was made into nutritious soups, and the fats saved for the production of glycerine.

Mrs. Harry W. Tyler, (Alice Irving Brown), '84, volunteered for work with the United States Employment Service, and many other Technology men and women performed similar work.

Perhaps attention should also be directed to those men in the register of civil activity who were members of the force popularly known as the Home Guard. These patriotic citizens sometimes excited a certain amount of merriment among those in more active service, but if there be any among our brethren who feel that service in the Home Guard was not war work, let them imagine what the Seattle uprising, or the Boston Police strike would have meant in October, 1918, particularly had there been no organization save the police to deal with them. The first battalion of the Home Guard was organized by James C. Boyd, '93. (See page 375.)

CHAPTER X

OTHER CIVILIAN SERVICE

Vital as was the work done by Tech men in the military service and as civilian advisers and experts in various Government Bureaus, it would not be proper to confine the story of Technology's record in the war to these alone, for there were others who, quite independent of the Government, did their full duty toward the Nation, and some of these made contributions even greater than those who fought upon the battle front. The services of these men generally lay in the production of equipment or ammunition and it is with these activities that this chapter chiefly deals. There are, however, a number of men who made contributions of a very different character. Among these special honor should be paid to H. H. Young, '91, J. W. Homer, '75, Professor C. R. Cross, Doctor Elihu Thomson of the Corporation, and W. M. Whidden, '77. Each of these men gave his son. Lieutenant Richmond Young, Harvard, '16, lost his life by leading his men in an attack upon the Kriemhilde Line in the Argonne; Ensign J. W. Homer, Jr., '19, succumbed to pneumonia contracted while serving in England; Charles R. Cross, Jr., '02, was killed in an accident while driving an ambulance in France; Captain Stuart Thomson, '09, died directly as a result of overwork on Government research problems. Whidden's oldest son was in the Army, his youngest son in the Navy and his daughter served with the Red Cross. The eldest son and the daughter both gave their lives.

There are others who in the past have offered themselves to the Nation, and long before the recent struggle had already given "the last full measure of devotion." Among the replies received are those of G. Wilton Lewis, '75 and Josiah A. Osgood, '70. They are records of military service but the names of the engagements set down are not those with which this generation is familiar, for we find upon it not the familiar "St. Mihiel" and "Argonne," but instead "Bermuda Hundred," "Cold Harbor" and "Petersburg." Lewis at the age of sixteen enlisted in the 112th New York Infantry, and fought through the latter part of the Wilderness Campaign. On July 26, 1874, he had been wounded by a shell and was taken to the General Hospital at Hampton, Virginia. In those days there was little known regarding treatment of wounds; Lewis' arm became infected and on three separate occasions it was considered necessary to amputate it to save his life. He at last prevailed upon the surgeons to allow him to retain it and ultimately recovered.

There is another Tech man who played no visible part in the recent war, yet but for him and his associates the war would have been very different in aspect. This man was Frank W. Very, '73. Perhaps no feature of the war was more spectacular than the struggle for command of the air. The ability of man to fly at the present day is based almost entirely upon the experiments of Doctor S. P. Langley of the Smithsonian Institute. This investigation was directed by Doctor Langley, but the detailed work was carried on largely by Very who for three years, about the year 1890, worked upon this problem and was largely responsible for the results obtained.

The great majority of Tech men, however, who took part in the struggle as civilians, did so as workers in various industries throughout the country which manufactured munitions and equipment for our military forces. Before taking up the story of these men it may perhaps be well to consider for a moment the relation which industry bears toward military preparation.

It is conceivable, and certain persons have suggested, that a nation should own and operate arsenals of sufficient size to care for all of its needs in war material. Those advocating this policy scarcely understand the magnitude of the problem. These arsenals would have to be of sufficient size to care for the maximum output which might be demanded, an output frequently in excess of that obtained from all industries of the country in time of peace. Such arsenals would have to be fitted up with an amount of

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equipment which is simply beyond calculation, and except in time of war this equipment would be perfectly valueless and unproductive. An immense staff would be necessary, even to keep these arsenals in order. Furthermore, should wars occur at intervals of twenty years, and history shows that they do appear at about that interval, the machinery provided for the last war would be obsolete in the next. Such a policy is folly. As a matter of fact no nation upon earth today attempts it.

If the problem of munitions supply is not solved by government arsenals, there is only one way in which it can be handled, namely by the co-operation of industries developed in time of peace. Such co-operation can be secured by contracts awarded in accordance with competitive bids, by contracts based on cost plus a certain per cent, by contracts awarded at cost which amounts to the conscription of capital, or by temporary confiscation of the plants and their operation by the Government during the period of hostilities. All of these methods were actually tried during the recent war, and which of them proved most satisfactory is still a matter of debate. It is not the purpose of this book to enter into this discussion, but it is felt that it can be safely assumed that nearly all the basic civilian industries were absolutely essential to the successful prosecution of the war, and those of our men who directed and took part in them were entitled to honor as a part of the Nation's fighting machine.

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Among the various industries which were necessary to the prosecution of the war certainly none were more absolutely essential than those which dealt with the manufacture of explosives and ammunition. Among the concerns engaged in this work E. I. du Pont de Nemours & Company is perhaps the best known. More than fifty-five Tech men are at present members of this company's organization, and it is probable that nearly twice as many served with it at one time and another between 1914 and the close of the war. The corporation is largely controlled by Tech men, and much of its war work was performed under their immediate direction.

When the European war broke out, T. C. du Pont, '84, was president of the company and was succeeded in March 1914 by Pierre S. du Pont, '90, who headed the company during the entire war period.

The executive committee of nine men included R. R. M. Carpenter, '01, vice-president in charge of development work; Frank L. Connable, '93, vice-president in charge of special purchasing; Lammot du Pont, '01, vice-president in charge of black powder manufacture; Irénée du Pont, '97, chairman. William du Pont, '76, was also a vice-president during the early part of the war period. As will be subsequently seen, many of the managers of various works, and others in important positions were also graduates of the Institute.

The du Pont organization entered the war in the fall of 1914 when the Allies realized that their supply of ammunition was wholly inadequate and the entire world was ransacked for sources of supply. At this date the capacity of the company's plants for propellant smokeless powders was somewhere between five hundred thousand and a million pounds a month, depending upon the size of powder desired. The smaller granulations, those suitable for field guns, were being sold for export at eighty cents a pound.

Early in 1915 agents of the Allied Powers requested the du Pont Company to furnish them with all the powder which they could make use of — somewhere in the neighborhood of a million pounds per day. The du Pont Company undertook to supply this demand upon two conditions; first, that the price should be \$1.00 per pound, an advance of twenty cents per pound above the current price, and second that an advance payment should be made amounting to fifty per cent of the contracts. At first glance it may appear that these conditions were severe, and that the company was taking undue advantage of the position in which the Allies found themselves, but from a business standpoint the facts do not bear out such a conclusion. In order to supply the Allies' demand a number of huge factories had to be built, notably those at Carney's Point and Hopewell.

The exact cost of these plants has never been made public, but it must have been



A BLENDING-TOWER FIRE. THE FLARE-UP CAUSED BY THE EXPLOSION OF FIFTY TONS OF SMOKELESS POWDER AT ONE OF THE WORKS OF E. I. DU PONT DE NEMOURS & CO.

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close to \$80,000,000. There appeared no reason to suppose that either plant would have an appreciable salvage value. Supposing that the factories succeeded in running full capacity for two years they would have produced some 600,000,000 pounds of powder. The original investment plus interest during the same period would have amounted to approximately \$90,000,000. It will be seen that in order to absorb the original investment it was necessary to make an increased charge of at least fifteen cents per pound. This figure is based upon the assumption that the demand would continue for two years and that no serious losses would occur, but this was by no means certain. Accidents are always liable to take place in plants handling explosives; upon one occasion, in less than fifteen seconds at Carney's Point something like \$500,000 worth of powder went up in one grand flash. This, however, was by no means the most serious danger. There was an appreciable chance that the Government might place an embargo on ammunition and war supplies, which would immediately leave a tremendous plant on the company's hands with no means of earning interest. Moreover, even the Allies themselves at this time confidently predicted that the war would be over before the fall of 1915. Had such been the case the amount required to write off the investment would have been much more so that all factors being considered, the apparent raise in price of twenty cents actually represented no increase in price at all, or even a decrease. The advance payment was also necessary since conditions were so uncertain that the company would otherwise have had great difficulty in financing the enterprise.

The reader will at once ask the question: If the price was to all intents and purposes decreased, whence have come the immense profits which this company is known to have made? The answer is very simple: They came through improved methods of production, and from the unexpected duration of hostilities. At just about the time the du Ponts undertook to supply the Allies, a series of inventions took place which literally revolutionized the manufacture of nitrocellulose powders. Perhaps the most important of these was an improvement in the drying process by which the necessary time was reduced from an average of about six months to twenty-one days.

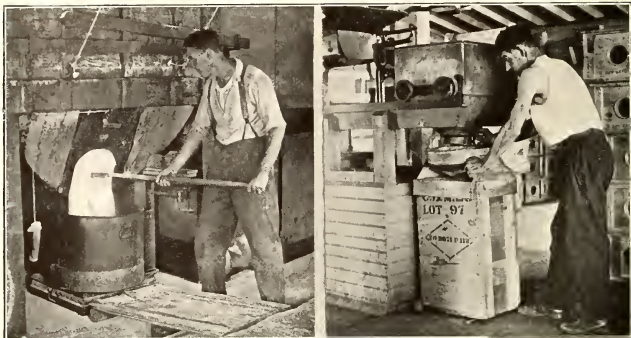
As quickly as the Allies had made their first payments, work was commenced upon the new plants. Such scenes of activity have seldom been witnessed in the United States. Material and labor had to be obtained wherever they could be had. In certain cases structural steel and heavy castings were shipped by express. Workmen flocked toward the new works by thousands, and finding no shelter available, bivouacked under tents, in houseboats and improvised "shacks" or slept in the open. Every available man was put to work until at one time the engineering department of the company was employing forty-five thousand men. A number of Tech men appear to have directed the work as resident engineers or assistants; these include Donald Van L. Downs, '13, who had charge of the layout of the nitric and sulphuric acid areas, and other work at Hopewell and Repauno, Walter H. Farmer, '02, resident engineer in charge of construction at Barksdale, Wayne and Brandywine, and Alexander J. Taylor, '01, assistant engineer and resident engineer at Penniman, Repauno, Arlington and Wilmington. Elmer W. Wiggins, '05, also had a hand in this work and in writing of it he says, "In the early part of the war — February, 1915, I went to City Point, Virginia, as assistant manager of the Hopewell Works.

"From a corn field, there soon was developed and built an immense gun cotton plant, with equipment and facilities for making everything that pertained to the manufacture of nitrocellulose, including nitric and sulphuric acids and acid recovery, cotton purification, water filtration, alum and caustic soda manufacture. We produced as high as 1,500,000 pounds of guncotton per day, most of which was turned into smokeless powder at some of our other plants.

"We built up an immense organization, employing at times as many as 25,000 employees.

"When you realize that nearly one-half of all the explosives used by the Allies were made by the du Pont Company and that practically all the guncotton used therein had to come from Hopewell, you can readily see that we "du Ponters" feel we had quite a share in winning the war."

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FROM GUNCOTTON TO FINISHED POWDER. TWO SCENES FROM THE PLANTS OF E. I. DU PONT DE NEMOURS & COMPANY

The one object was to begin the manufacture of powder as early as possible. The conditions under which the work was carried forward can best be illustrated by those existing at Carney's Point where A. F. Porter, '98, was manager, and a number of Tech men including W. F. Harrington, '05, assistant manager, J. F. Muhlig, '98, maintenance engineer, P. G. Darling, '05, of the experimental division of the engineering department, E. A. Walter, '06, supervisor of solvent recovery and later efficiency engineer, Arthur C. Merrill, '08, assistant supervisor of one of the powder lines, and a number of other Tech men, including the Editor were engaged.

No one who was not there at the time can appreciate the situation. Outside the plant, the little town of Penn's Grove swarmed with men of all sorts and classes. Thousands had been drawn by the stories of high wages, and there were also many professional thieves, gamblers and thugs, who came not to gain employment, but to prey upon the real workers. The single hotel had fitted its cellar up as a bar and continuous lines of men passed through the building, each one receiving a drink, and again forming in line. Fights were of hourly occurrence, and the cry of "Stop thief!" was frequently raised when some pick-pocket or crooked gambler was apprehended and chased about the town by a mob of infuriated workmen.

Inside the plant there was order but scarcely less activity and excitement. The men, almost without exception, were new to the work, and to obtain production additional men were used on every machine. In spite of the best efforts of supervisors and foremen, powder was constantly accumulating, at certain points forming a serious menace in case of fire, and giving off fumes of ether which tended to produce a sort of drunkenness among the operatives and which frequently overpowered them. Under such conditions accidents were frequent and serious, and the casualty list for the first few months of 1915 was heavy even for the powder industry.

The plants for the most part had been located on marshy ground, and all night long the mosquitoes hung in swarms around the newly installed electric lights, making life almost intolerable. Among the employees there were not only professional criminals, but a plentiful sprinkling of German spies and agents who lost no opportunity to introduce matches into the buildings and the powder itself, and to stir up trouble among their fellow workmen. Yet in spite of these conditions there was a peculiar enthusiasm about

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the men from the highest to the lowest, which was exceedingly significant. The United States had not entered the war as yet, but public sympathy was setting strongly against Germany. The laborers worked as though they were themselves on the firing line, while the rapidly gathered executive staff, chiefly composed of young men from every line of business, except powder, threw themselves into their new work with an enthusiasm which has seldom been equalled. Of these men there are indeed few who have not seen the night sky blaze with a terrifying orange-colored flash, followed by the dull red glow of burning embers. Many of them have felt the ground tremble and heard the muffled roar of an explosion which meant the life of friends or comrades. Yet the work never faltered. Before the ashes of wrecked buildings were cool they were raked aside and a few days later a new building was in full operation. Such a spirit could not long be withstood, and soon visible order began to emerge from apparent chaos.

The improvement was brought about by the co-operation of men from all departments and holding every sort of position. Many of our men had a hand in it, among whom were P. Leroy Flansburg, '13, safety and efficiency engineer at the Haskell Plant, and E. M. Harrington, '89, chief of the cost division, who did special efficiency work for the smokeless powder operating department.

Some idea of the difficulties which were encountered and the manner in which they were overcome can be gained from a consideration of a certain type of powder developed for use for the British Government. The latter, previous to the war, had used nitroglycerine powders which give a high muzzle velocity for a given size of chamber, but which rapidly erode the rifle. The du Pont organization undertook to produce a nitrocellulose powder which would give the same velocity and which would not so quickly injure the barrel. R. C. Woodbridge Jr., '07, the company's rifle powder expert at Carney's Point, and other members of the staff invented a process for the manufacture of such a powder. The guncotton department produced it, but when it reached the later stages of manufacture difficulty was encountered. The new material could scarcely be pushed through the dyes of the presses, and was equally difficult to cut into grains. Woodbridge and his associates undertook further investigation co-operating with powder line and cotton line supervisors and it was soon demonstrated that by decreasing the size of certain insoluble fibres a product could be obtained which ran smoothly and easily through the presses and cutting machines.

About the same time alterations were made in the presses which increased the capacity of each by fifty per cent, while the improved condition of the product allowed the cutting machines to handle this increase without difficulty. It was also found that it was not necessary to mix the new material as long as previously, and various economies could be made in the matter of solvent. As quickly as these economies were made, it was found that if the solvent was held in the material, it performed still better in both presses and cutting machines, and the production continued to increase while the labor of handling decreased to such an extent that houses previously manned by thirty operatives were finally handled by crews of sixteen or seventeen. The decreased time of manufacture resulted in decreased loss of solvent, lower cost and improved ventilation.

The decreased number of men and the decreased quantity of powder in any one place at any one time greatly decreased the risk, while the work of engineers in the safety department, among whom may be mentioned F. L. Hurlbutt, '15, who was safety engineer on general advisory work throughout the company's plants, introduced further improvements. Finally houses which had been once manned by twenty men, were manned by crews of from four to five. Such an example of efficiency engineering would be hard to duplicate. Moreover, accidents decreased to such a point that many of the smokeless powder plants became the safest factories in their districts, that at Carney's Point actually having a lower accident rate than is normally present in lumber mills, rolling mills, foundries, and other operations not generally classed as hazardous.

At all plants changes were made looking toward the welfare of the men. Police and fire protection was provided which insured relative safety from hostile agents or disorders created by them. The policing of the plants was done under the direction of Vice-President R. R. M. Carpenter, '01. This work was far more extensive than mere

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provision of watchmen. It required a regular military establishment of armed guards, aggregating about one thousand men, practically all of whom were either honorably discharged Army and Navy men before the United States entered the war, or were men drawn from the Pennsylvania Constabulary and organizations of like character. The force included a secret service which co-operated with that of the United States so efficiently that no serious outrages were perpetrated by alien enemy sympathizers, so far as is known. The criminal element which had been present about the plants when they were first placed in operation was rapidly disposed of. Mosquito breeding swamps were eliminated. No fewer than 10,790 dwelling houses including bunk-houses for 65,000 men were erected, while some 570 buildings for the use of the community such as schoolhouses, churches, Young Men's Christian Association and similar buildings were also provided. The plants and the surrounding hamlets soon became models as manufacturing districts.

Numerous other Tech men who have not been mentioned previously were engaged in the work during this period, among whom may be noted Jasper E. Crane, '04, manager of the cellulose division of the chemical department, Heisler Harrington, '13, guncotton superintendent, and later general acid superintendent at the Hopewell plant, Stuart B. Miller, '01, superintendent of the high explosives plant at Deepwater Point, Harold B. Pickering, '08, assistant engineer in the delta laboratory at Arlington, and Homer Rogers, '15, who as a chemist worked on various war materials in the organic department of the experimental station. William J. Rooney, '15, served as ballistic engineer at the experimental station and elsewhere.

The benefits resulting from the various improvements were not entirely absorbed by the company; it voluntarily shared the saving with its customers. The extent to which this was done can be judged by considering that notwithstanding the price of every other commodity in the United States had steadily increased during the war, the price at which powder was delivered to the Allies decreased from \$1.00 per pound in October, 1914, to 47½ cents a pound in October, 1918, and the last contract signed with the United States Government for the deliveries in 1919 was based on a price of 43¼ cents a pound. All contracts incomplete by reason of the signing of the armistice were cancelled by the company without profit.



TYPICAL EMERGENCY HOUSING ACCOMMODATIONS FOR MUNITION WORKERS — ATLANTIC LOADING COMPANY

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After smokeless powder, perhaps the most important factor furnished the Allies was high explosives, and here again the price throughout the war was kept unchanged or lowered. At the beginning of the war T. N. T. sold for a dollar a gallon, but sank steadily in price despite the fact that toluol, which before the war had sold at nineteen cents per gallon, rose to the price of \$7.00. The du Pont Company was not selling this material at a loss, but by sound business foresight had insured itself against the rise in price which took place.

The company not only made powder and explosives, but also celluloid articles which were used in the construction of aviators' goggles and other necessities, fabricoid material for gas masks, and numerous chemical and other by-products which had a war value.

Later the du Pont Company was able to afford further aid for the British Government when the latter determined to erect its own immense powder plant at Henbury, England. The entire plans for the plant were furnished by the du Pont Company without charge, together with superintendents and supervisors to insure proper construction, and later to begin operation.

The duties performed by the Tech men and their companions in the du Pont organization during these early days of the war were arduous and in many cases dangerous, yet the work was pushed night and day. Forty per cent of the propellants and high explosives used by the Allies during the war came from the plants of E. I. du Pont de Nemours & Company, and during the years 1915 and 1916 the percentage was probably even higher. It will be recollected that at this time the Allies were desperately short of ammunition, and had their supply been but one-half of what it actually was there could have been but one outcome of the war. This fact appears to have been very fully appreciated by the Allies, for Pierre S. du Pont, the president of the company, to whom according to his associates the chief credit for the work is due, was appointed a chevalier of the Legion of Honor by the French Government. The appreciation of the British Empire was voiced by a member of the British Mission, General Hedlam, who, in speaking to the vice-president of the company said, "Please let me shake your hand again, sir, and permit me to say to you that the du Pont Company is entitled to the credit of saving the British Empire!"

Some time before the United States became a belligerent, the du Ponts had realized that our participation would be inevitable, and had sent out engineers to select suitable sites for plants to supply the increased demand which they knew was sure to come. As a result at the outbreak of hostilities they were able to offer the Government complete plans for plants at well selected locations; they proposed that the Government should take over these sites and establish works which were to be built and operated by the du Pont Engineering Company on a cost-plus basis. The largest of these plants was one near Nashville, Tennessee, generally known as the "Old Hickory" plant.

Delays on the part of the authorities in making a definite decision prevented the plant from being commenced until March, 1918. Once begun, however, the work was pushed to completion with such rapidity that upon the day of the armistice, the plant was already producing four hundred and seventeen thousand pounds of finished product per day. At that date it was about ninety-three per cent complete, and would shortly have been producing one million pounds, each twenty-four hours, that is to say the finished plant would have handled about as much material from raw cotton to finished product as the du Pont Works at Hopewell and Carney's Point combined.

The size of the plant can be judged by a few statistics regarding it. In full operation it would have employed 35,000 men, the strength of one combat division in the Army. Its acid plants required 750 tons of sodium nitrate and 338 tons of sulphur per day. Its power plants consumed a hundred carloads of coal during the same period, and its water supply is equivalent to that for a city of one million people. The total cost of the works when completed was about eighty million dollars which is but slightly above the price originally estimated, while the profit accruing to the du Pont Company as a result of the entire contract, including the building and production of powder, amounted to slightly over one per cent. The plant could scarcely have been better located for it is close to the

TECHNOLOGY'S WAR RECORD



STORAGE MAGAZINE FOR HIGH EXPLOSIVES — ATLANTIC LOADING COMPANY
ORGANIZED BY JOSEPH D. EVANS, '01

chief sulphuric acid supply and the chief coal supply of the United States, while the fields of Tennessee provide the chief source of short fibre cotton which is most suitable for smokeless powder. It is moreover situated inland at a point well protected from hostile invasion, and is accordingly an ideal spot for such a factory. The Government has, however, recently made arrangements for the sale of the entire plant and the city which surrounds it.

In connection with the construction of this plant a number of Tech men have already been mentioned elsewhere. David M. Terwilliger, '14, served as assistant testing engineer at "Old Hickory" and Howard C. Slater, '90, also served in the estimating department there.

The du Pont Engineering Company also built a number of other plants for special work in connection with the war, which included a shell loading plant at Penniman, Va., which had a capacity of 54,330 rounds per day, a plant for the manufacture of Trinitroxylyl for the Navy at Barksdale, Wis., and additions to the Smokeless Powder Plant of the Navy at Indian Head, Md. It also operated two plants for loading smokeless powder charges into bags, and furnished the layout and drawings for the Smokeless Powder Plant built by the Government at Nitro, West Virginia. This plant, which was designed for a capacity of 625,000 pounds per day, was subsequently operated by the Hercules Powder Company. (See page 363.)

As elsewhere in this history the account here set forth of our men of the du Pont organization is fragmentary and incomplete. In addition to the great guncotton and smokeless powder plants there were many other high explosive plants all over the country where research laboratories were maintained in which improvements were constantly devised and in which a number of new explosives were developed.

The du Pont Company alone furnished the United States and its Allies with something over 1,500,000,000 pounds of explosives including guncotton, smokeless powder, T. N. T., T. N. X., picric acid, ammonium picrate, black powder, dynamite, ammonium nitrate, tetryl, and also 10,125,000 rounds of special ammunition for aeroplanes; 80,000,000

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caps; and 215,000,000 black powder pellets for loading time fuzes of shells. They contracted to load shells, primers, boosters and adapters to the number of 300,000,000. This material represents forty per cent of all explosives supplied to the United States and her allies during the war.

Another organization engaged in the manufacture of explosives on a tremendous scale was the Hercules Powder Company which has been mentioned. A number of Tech men were associated with this company, among whom may be mentioned L. N. Bent, '06, who was designated to take charge of the plant at Nitro, West Virginia. He had already done brilliant work in developing an emergency supply of potash.

One of the severest problems with which we were faced during the early days of the war was that of producing black powder, for while that material is no longer used as a high explosive or as a propellant, it still plays an important part as an igniter for smokeless powder charges. An essential constituent of black powder is potassium nitrate, and while sodium nitrate could be obtained from Chili, the only source of potassium had been Germany. Extensive experiments were conducted looking toward the utilization of sodium nitrate in black powder, but this was not necessary because of a new source discovered and developed by Bent. Realizing that the kelp seaweed of the California Coast had a high percentage of potash in it, Bent undertook to utilize this as a source of supply, and developed the most ingenious process. The kelp was harvested at sea by three specially equipped dredges. The material was then brought to the plant on shore where it was pumped into fifty thousand gallon tanks and fermented. Acetic acid developed and was neutralized with crushed limestone. The fermented liquor was clarified and concentrated by evaporation. During concentration common salt, calcium acetate, and a gum containing a number of organic acids and acetates were precipitated out. After concentration the liquor was cooled and the potash was precipitated in the form of potassium chloride of an average purity of about ninety-seven per cent. The calcium acetate was then transformed into acetone. The gum was used to make ethyl acetate, and a considerable amount of iodine for medicinal purpose was obtained together with numerous other by-products. Most of the information regarding this process has been furnished by Lawrence C. Hampton, '07, who was himself the assistant superintendent at the company's plant at San Diego, where this process was developed. N. P. Rood, '99, who was vice-president of the company states, "I feel confident no Tech man played a more important part during the war than L. N. Bent." Altogether eighty-five per cent of the productions of the Hercules Powder Company were used by the United States Government after the latter had entered the war. Another Tech man with this organization was E. M. Symmes, '11, who is now assistant chemical director of the company. During the war he worked at various plants being chiefly engaged in the manufacture of black powder and dynamite.

While not so famous as the du Pont Company, there was another organization in the United States also directed by Tech men which furnished a tremendous amount of high explosives for the Allies, particularly the French. This was the Semet-Solvay Company of which E. L. Pierce, '86, is president, and Reginald K. Pierce, '09, secretary. The Semet-Solvay Company, which is associated with the Solvay Process Company of which Robert W. Swift, '95, is treasurer, is engaged in the manufacture of coal tar products, and during the war undertook tremendous contracts for high explosives. The Semet-Solvay Company specialized on picric acid which forms the basis of the British lyddite, the French melinite and the American explosive D, while the Solvay Process Company continued to manufacture huge quantities of caustic soda and other basic chemicals. At the outbreak of the war the Semet-Solvay Company was the only manufacturer in the United States engaged in the production of picric acid. The company operated a steadily increasing number of plants in the early part of the war, and after the United States entered it built and operated a plant at Grand Rapids which was designed for a capacity of 463,000 pounds of picric acid a day.

The general superintendent of the Semet-Solvay Company was C. G. Tufts, '01, who states that in addition to immense quantities of picric acid and T. N. T., the company was probably the largest producer in the United States of toluol, ammonia, benzol and foundry coke. Harlen M. Chapman, '02, was superintendent of the concern's Indi-

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anapolis plant and was engaged in turning out various coal tar products. Walter E. Hopton, '91, during the war had charge of all engineering purchases for the company.

The next step after producing the explosives was loading the ammunition. J. D. Evans, '01, was a pioneer in this type of work. Early in 1915 as an agent for the Canadian Car and Foundry Company, Limited, of New York, he undertook work in assembling, loading and packing the necessary components for the 3-inch high explosive shell and shrapnel used by the Imperial Russian Government. In this work he became associated with Colonel B. W. Dunn, the inventor of dunnite, who for many years headed the Bureau of Explosives and who, after the outbreak of war, became chief of the Inspection Division of the Ordnance Department. Evans had charge of the Kingsland Loading Plant at which the entire contract for five million rounds was assembled. A very high efficiency was developed and a daily loading capacity was attained of forty thousand



LOADING HIGH-EXPLOSIVE SHELLS — ATLANTIC LOADING COMPANY

shrapnel and forty thousand high explosive shell before the end of the year 1916. In spite of the disaster which interrupted the operations of the plant, the entire contract was completed in the year 1917.

When the United States became a belligerent Evans desired to apply for a commission in the Army. He was advised, however, by Colonel Dunn that as he was one of the only four men in the United States who had actually had practical experience in shell loading, his most useful work could probably be performed in organizing and operating another shell loading plant. He accordingly submitted a bid in May, 1917, and was awarded a contract for loading, assembling and packing 1,350,000 rounds of high explosive shell. To carry out this contract he formed the Evans Engineering Corporation of which he became president. Not only was the contract completed, but in addition 15,000 8-inch high explosive shell were loaded, assembled and packed during the year 1918, and at the date of the armistice, the company had loaded a total of about 1,250,000 of high explosive shell upon a third contract. The Evans Engineering Corporation holds the record in the United States for the total number of 75 mm. shell loaded, and also for a daily output of this size shell.

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While directing work on these contracts during the latter part of 1917 and the early part of 1918, Evans assisted in forming an even larger organization — the Atlantic Loading Company, of which he became vice-president and operating manager. Another of our men who was engaged in the construction of this plant was W. H. Martin, '07, who acted as assistant engineer on design and construction.

The plant which was situated near Atlantic City like everything else constructed during the war was built on a tremendous scale, its capacity being sufficient to handle more than twenty-five per cent of the entire supply of shell contracted for by the Ordnance Department. The works actually loaded over nine million rounds of various types of ammunition ranging in size from seventy-five millimeter to ten inch, and from rifle grenades to aeroplane bombs. The chief material used for loading was Amatol, a mixture of T. N. T. and ammonium nitrate, and from this the adjacent town received the



PREPARING HIGH-EXPLOSIVE SHELLS FOR SHIPMENT — ATLANTIC LOADING COMPANY

name of Amatol. The plant which occupied some 6000 acres consisted of 642 structures besides barracks and dwelling houses for the employees. It was designed to assemble 60,000 shell and 125,000 small pieces such as boosters and grenades each day. So flexible was the arrangement that any kind of shell could be loaded in any building although certain buildings had been designed primarily for certain types. It was the first plant to use belt conveyors in the production of shell, and its tremendous capacity resulted largely from these devices. Many other excellent features of design were included, such as kettles so constructed that the T. N. T. heated in them was protected by water jackets, thus preventing disastrous explosions such as that at Aberdeen Proving Grounds (see page 265). Nevertheless arrangements were made by which, should an explosion occur, other buildings could be used to take over the work of those destroyed. The amount of explosives actually loaded in the plant are impressive, for in a single day there were consumed 248,000 pounds of T. N. T., 344,000 pounds of ammonium nitrate and 12,500 pounds of nitro-starch.

It was also necessary to supply housing accommodations for some 25,000 people. This was done in accordance with the best practice in city planning, the houses being of

TECHNOLOGY'S WAR RECORD

cheap and rapid construction, but nevertheless so arranged as to avoid both the hit-or-miss appearance of the average mushroom "munition town" and the monotonous fronts so frequently noted in the neighborhood of large factories. A number of mess halls were provided, the largest having a capacity of 6000 persons per hour. A very large number of women were employed in the plant, and these were given excellent accommodations. Residences of several types were provided, as well as office buildings, stores, welfare buildings, including the Young Men's Christian Association, club and swimming pool, and places of amusement. The wisdom of these provisions is made evident by the fact that the plant had a very small turnover of labor, especially among its women.

Another pioneer in shell manufacture was J. Arch Mears, '03. In 1915 he organized the South Brooklyn Machine Corporation for the purpose of machining shells for the British Government. Under him all the necessary equipment including machines, gauges, and tools were designed, and before long the plant was producing from 1000 to 1200 shells a day, working day and night. Owing to the constantly increasing exactness required by the British specifications the corporation never succeeded in showing profit. Later on, however, shells of American design were handled which proved much better adapted to the machinery.

Another company which manufactured a tremendous amount of shell for the Allies was the Platt Iron Works Company of Dayton, Ohio, the vice-president and general manager of which is Edward C. Wells, '92. Before the United States entered the war over two million rounds of shrapnel had been manufactured for Russia under Wells' direction, while later the company continued to work on all manner of munitions, particularly shells and air compressors for the Navy and shells and tractors for the Army.

Similar work was carried on by G. R. Townsend, '99, vice-president and general manager of the International Steel & Ordnance Company, Lowell, Mass., which was engaged in the manufacture of percussion fuzes for field ammunition.

The infantryman of the recent war did not always depend upon fire arms for his victories. The bayonet and the intrenching tool were indispensable weapons, and during the first years of the war ranked with the field piece and the machine gun in importance. Both of these implements are produced as drop forgings and it is therefore natural that Calvin P. Bascom, '04, manager of the St. Louis plant of Fayette R. Plumb, Inc., should have taken an important part in their production. The first contract handled was one involving the production of half a million bayonets for Russia. Bascom on receipt of this order laid aside all other work and as a result the war products of the plant represent very largely the results of his efforts as an individual. The next contract was for half a million intrenching pick-mattocks for the United States. The tool is a difficult one to manufacture and other works were unable to produce an implement which would pass the bending test prescribed. Bascom, however, developed a process for obviating this difficulty which was so successful that the Government requested and received permission to introduce it in a number of plants which under peace time conditions are competitors of the Plumb corporation. So successful did it prove that after its adoption less than one per cent of the product was thrown out because of failure to pass inspection.

The plant subsequently handled orders for hand axes, picket pins, wire cutters, bolos and tools. Picket pins were developed which could be driven through four inches of concrete with a sledge-hammer without failure. The bolo appears to have been the product, however, of which Bascom and his organization are proudest. This knife — Bolo Knife, model 1917 commercial type — was manufactured at the St. Louis plant and its excellent design resulted in a saving of over a million dollars to the government.

A number of our men served with Canadian munition companies. Among these may be noted Edward D. Donald, '13, Archibald McColl, '87, William H. Eager, '04, Reginald F. Pollard, '15, and Lawrence H. Bailey, '15. Donald might well be placed on the Roll of Honor, for, while he never wore the British uniform, he died in service as truly as any man at the front. On three separate occasions he endeavored to enlist but was always refused because of defective eyesight. He then took up work for the British Munition Plant at Toronto. His work involved the inspection of electrical installations, and on June 26, 1918, while in the course of one of these inspections, he ascended a ladder

MUNITIONS

to a very considerable height. No one was at hand at the time, but it is supposed that he inadvertently touched a live wire. In any case he was found dead a short time afterward, having evidently fallen to the floor.

McColl was secretary and assistant to the president of the Nova Scotia Steel and Coal Company, Limited, and in this capacity supervised the manufacture of large quantities of shell for the British Government. The company had never previously produced steel for munitions of any kind, but in November 1914 completed the first shrapnel shells to be made in Canada. By August 1915 ninety per cent of its total capacity was engaged in forging and finishing shells ranging in size from 15 pounder shrapnel to 9.2 inch high explosive shells. Altogether during the war it produced 13,000,000 shell forgings, and finished over 500,000 shells, and in addition furnished 10,000,000 discs and base plates to be finished at other factories. The president of the company was a member of the Canadian Shell Committee and as a result was generally absent at Ottawa, so that McColl was practically in charge of the entire work.

By completing its first shell in November McColl's plant earned a place as a pioneer among shell manufacturers. It was, however, very little, if any, ahead of the Canadian plant of the Whitman & Barnes Manufacturing Company of which Eager is vice-president. As early as the first of October 1914 this plant began turning out shell forgings. The two plants located in the United States were soon aiding the Canadian plant and all continued to turn out shell and other forgings for the Imperial Munitions Board until the United States entered the war, when they were slowly shifted to handle forgings and machine tools for Navy Yards and Arsenals. The company supplied certain munition works with their entire equipment of machine tools.

Pollard worked for the Canadian Explosives, Limited and British Cordite Company, Limited, as a supervisor of cordite manufacture and solvent recovery.

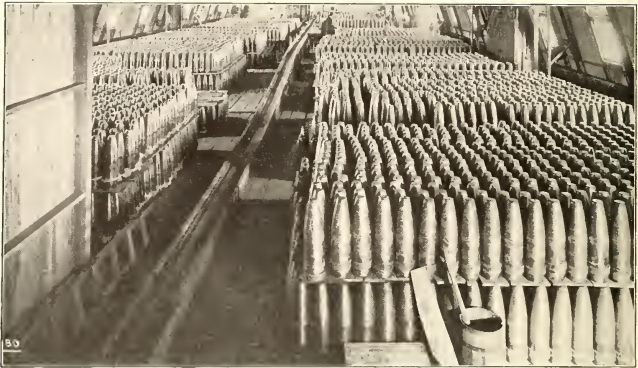
Bailey was a chemical engineer and did considerable work in design of amatoil mixers, poison gas condensers, experimental work on the manufacture of pellets of Tetryl and other explosives for shells, boosters, fuses, tracer bullets, and signal cartridges. He had two slight explosions while engaged in experimental work, but fortunately escaped unhurt.

A number of our men were actively engaged in the manufacture of small arms and machine guns. Edwin Pugsley, '11, served as a manufacturing engineer with the Winchester Repeating Arms Company which furnished the first rifles, rifle cartridges and Browning machine rifles to the Government. C. W. LaFetra, '15, worked for the same firm being in charge of special tools; he developed a number of interesting devices including a heavy duty hydraulic lathe for the production of large caliber projectiles. He also assisted in the design and development for quantity production of the heavy Browning machine gun.

Some of our men were also engaged in the manufacture of protective equipment. Among these was Harold L. Bodwell, '98, assistant district manager of the American Sheet and Tin Plate Company, Vandergrift, Pa. The entire production of the factory was on war work, the most difficult matter being that of producing manganese sheet steel for helmets. The requirements were exceedingly severe since it was necessary that the sheets should be sufficiently malleable to be pressed, and yet it was required that they should withstand the impact of a bullet fired from a forty-five caliber service pistol from a distance of ten feet. The plant manufactured sheet steel of all kinds, and Bodwell has listed a large number of uses to which it was put, including the manufacture of every type of article from steamships to trench-ration containers.

A. L. Davis, '98, first with the Crucible Steel Company of America, and later with the Scoville Manufacturing Company also took part in ammunition manufacture. His particular work was in connection with annealing cupro-nickel for bullet jackets, and throw-off strips for safety element for the Mark III fuse. Altogether three and one half million of these pieces were annealed with a loss of one-tenth of one per cent. His most important piece of work, however, was perhaps that accomplished by salvaging over a million pounds of supposedly worthless cupro-nickel which was made available for use by the Frankford Arsenal at a time when it would otherwise have been almost impossible to obtain.

TECHNOLOGY'S WAR RECORD



BIRTHDAY PRESENTS FOR BILL — ATLANTIC LOADING COMPANY

Perhaps the most unique piece of work in the munition manufacture was that of George C. Thomas, '05, who for the first two years of the war was superintendent of the Russian works of the Singer Manufacturing Company located in the town of Podolsk about thirty miles north of Moscow. The company supplied practically every type of munition, including shells, detonators, rifle parts, gauges, special machines and tools for fuses, lathes, hand grenades, gas masks, iron beds and pajamas. Thomas' most important work as an individual was that of standardizing the manufacture of shells, fuses and other material, and developing a plentiful supply of accurate gauges to place the manufacture of these articles on a quantity basis throughout Russia. When one considers the almost total lack of industrial development of the country, it will be seen that this amounted to developing the production of every type of modern machinery with facilities not much better than those available in Europe during the Middle Ages. Before any increase in munitions could be made, it was necessary to increase the supply of every basic machine clear back to those for obtaining raw material

AIRCRAFT MANUFACTURE

At the outbreak of war there were in the United States but ten organizations engaged in the manufacture of airplanes: the Curtiss Aeroplane & Motor Corporation, the Standard Aircraft Corporation, the Thomas-Morse Aircraft Corporation, the Wright-Martin Aircraft Corporation, Sturtevant Aeroplane Company, the Burgess Company, the L. W. F. (Lowe, Willard & Fowler) Engineering Company, the Aeromarine Engineering and Sales Company, the Gallaudet Aircraft Corporation, and the Boeing Airplane Company. During the war Tech men appear to have served in all of these plants with the exception of those of L. W. F. and Boeing; in many they held positions of great responsibility.

Among those who served on the staff of the Wright-Martin Aircraft Corporation may be mentioned Henry M. Crane, '95, vice-president and chief engineer of the company; Walter W. Alley, '13, chief engineer at Los Angeles; George J. Mead, '15, experimental engineer, in charge of the experimental department at the New Brunswick (N. J.)

AIRCRAFT MANUFACTURE

and Long Island branches of the corporation; Harold L. Pope, '02, factory manager at Los Angeles and later at New Brunswick; H. O. Isenberg, '06, assistant factory manager and later factory manager at New Brunswick; Ralph H. Nesmith, '05, engineer, in charge of production and machine-shop layout at New Brunswick; and Ralph H. Crosby, '07, who served as chief draftsman for this corporation and also for the Standard Aircraft Corporation and for the Curtiss Aeroplane & Motor Corporation.

Crane's work can be best described in his own words. He says, "My work really began in November, 1915, when I was sent to France by the Simplex Automobile Company, subsequently purchased by the Wright-Martin Aircraft Corporation, to pick out an airplane motor for production in this country. The Hispano-Suiza, just then coming into production in Paris, was selected and a small order obtained from the French government. When the United States entered the war this motor of the 150-horsepower size was in production on a small scale. It was not considered powerful enough for fighting work but was adopted for advanced training, and became increasingly popular for this purpose, being standard at the armistice, for this work. Its design was much improved in 1918, and a model developing over 200-horsepower was designed for fighting purposes. During 1918 a 300-horsepower model was perfected and was just coming into production when the war ended, having been adopted as the standard light-fighting motor for 1919. I also acted as chairman of the Liberty Engine Test Committee for the Aircraft Board and as a member of the Liberty Engine Committee of the Department of Aircraft Production."

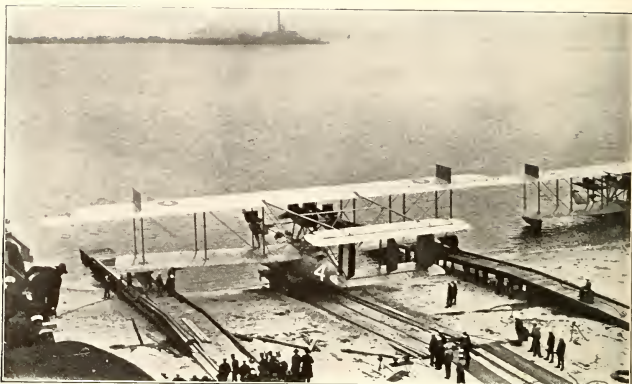
Work at the California plant of the corporation where Alley and Pope were stationed does not seem to have proceeded so smoothly as at Crane's shop. In April, 1917, the factory was working on an order for fifteen planes for the Army and Navy, and with a force of approximately one hundred men was completing one plane each week. The order was completed in June and the Government soon placed another for fifty standard J-1 planes. The drawings for these planes were not received until September but nevertheless the first plane was delivered on December 20, and shortly afterwards planes were delivered at the rate of one per day. Another order for two hundred JN4-D Curtiss planes was ready for signing and work had actually commenced on it when the company abandoned it and closed the factory. The cause assigned to this action Alley states was that the plant was unable to compete with eastern factories, due to the heavy freight charges on all materials except wood.

After the organization of the Bureau of Aircraft Production, Alley endeavored to organize another factory and attempted to secure a contract, but the Bureau ruled that no further contracts would be let on the Pacific coast. Alley then applied for a commission in the Air Service, but failed to receive it before the date of the armistice.

Mead, Pope, Isenberg, Nesmith, and Crosby all worked in the various departments of the great plant at New Brunswick, and their chief service seems to have been the development of the Hispano-Suiza engine mentioned by Crane and the perfecting of the De Havilland-4 plane. Mead, as head of the experimental department, was engaged in investigating the characteristics of the Hispano-Suiza engine and working out what changes should be made to adapt it to American production without injuring its splendid qualities. Pope, who had served as factory manager of the California plant and filled the same position at New Brunswick, worked upon the production of this engine, and during the summer of 1918 went overseas to study the motor as built abroad. During his absence Isenberg who had previously served as superintendent of assembling and testing, acted as factory manager. The work of Nesmith and Crosby is perhaps sufficiently clear from their titles.

Another of the larger companies in which Tech men were prominent was the Curtiss Aeroplane & Motor Corporation. How large a part was taken in the production of aircraft by this organization may be judged from the statement of James F. Duffy, '11, assistant chief of its planning department, who says, "We were so busy we had no time to reply to the critics of the aircraft program, but when the smoke of battle cleared away it was discovered that the Curtiss Company had turned out over seven thousand airplanes for the Army and over ninety-five per cent of the seaplanes for the Navy." The company expanded from an organization of some fifteen hundred men to upwards of fifteen thou-

TECHNOLOGY'S WAR RECORD



NC-4, LARGELY DESIGNED, BUILT AND PUT IN CONDITION BY TECH MEN, ABOUT TO START ON A TRIAL TRIP

sand, and during this period of expansion Duffy was charged with the duty of laying out the new plants, arranging for new machinery, working out new methods of manufacture and lining up a comparatively green organization.

Among the Tech men working in the Curtiss organization may be mentioned Paul Swartz, '06, assistant to the vice-president and comptroller; Donald R. Husted, '16, aero-engineer; Charles H. Tavener, '18, Erich G. Huerdler, '10, and Kester Barr, '11. We know little regarding Swartz's work except that it was strenuous. Husted and Tavener appear to have had a part in developing some rather remarkable machines. Husted's work was chiefly research at the great Curtiss air tunnel, where among other models, he tested the famous NC boats and also a number of very fast scout and seaplane models. Tavener was also engaged in this work, and states that some of the seaplanes developed were the fastest built during the war. He also appears to have had a hand in the design of the "Wasp" — a little triplane capable of travelling over one hundred and sixty miles an hour; it was this same machine which recently soared to the tremendous altitude of thirty-four thousand feet. Tavener's contribution to the design of this machine consisted chiefly in calculating wing and body stresses and in working out estimates of the probable performance as predicted from tunnel tests. Later he worked for some time at Garden City, where he mentions the presence of some fourteen other Technology men working for the Curtiss Company or for the Naval Air Service. Huerdler was engaged in examining lacquers, "dopes," and glues used in the manufacture of planes and in making tests upon fabrics, including linen, cotton, silk and rubber materials, and kiln tests on various types of wood. He later enlisted in the Navy, was commissioned and served as assistant engineer on board the "George Washington" during her trip to Europe in the summer of 1919. Barr occupied various positions, chiefly connected with the purchase of screw machine products.

Another of the large airplane contractors was the Standard Aircraft Corporation of Elizabeth, N. J., and here again a number of Tech men were engaged, including Thomas H. Huff, '15, chief engineer; Christopher C. Crowell, '17, aeronautical engineer; Elliot

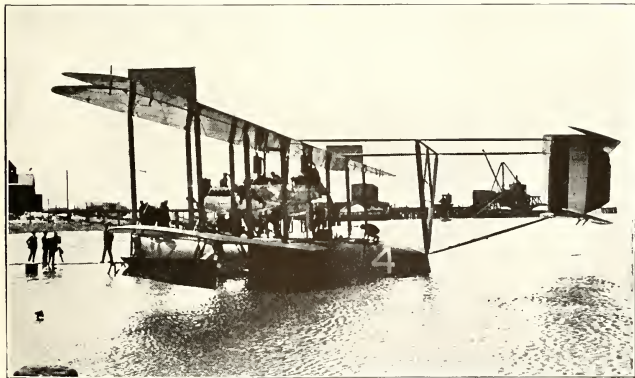
AIRCRAFT MANUFACTURE

Daland, '18; and Zeng-Tze Wong, '18. Huff had general charge of the engineering work at the corporation, while the other three Tech men were engaged in experimental work of various types. Crowell helped develop a fireproof nitrate "dope" or varnish for coating airplane wings and assisted in the design of several new planes, and, together with Daland and Wong, made a complete stress analysis for the first Caproni and Handley-Page machines produced in the United States.

A large percentage of the Tech men engaged in airplane manufacture worked as designers, and perhaps none accomplished more satisfactory results than Donald W. Douglas, '14. Douglas started out as chief civilian aeronautical engineer of the Air Service, but in November 1917 resigned to become chief engineer of the Glenn L. Martin Company. While occupying this position he designed and developed the famous Martin Bomber, which proved so successful that it was adopted officially as the standard night bomber of the American Army and concerning which Assistant Secretary of War Crowell has said that at the date of the armistice it seemed in a fair way to displace all other types. At the time of the armistice all plans had been made for quantity production of the machine, which was well adapted to American tools and methods. Since then machines of this type have made many remarkable performances under all sorts of conditions.

Two of our men were with the Gallaudet Aircraft Corporation — Harry A. Lewis, '11, and Herbert R. Polleys, '18. Both took part in the engineering design of the D-4 model, which was especially adapted for the Liberty motor and which is claimed to have been the fastest of the seaplane models equipped with floats. The plane was of somewhat unique since it was of the pusher type, the propellers being behind the wings.

Other Tech men represented Technology among the smaller companies. Norman L. Skene, '01, was assistant engineer at the Burgess shops at Marblehead, being especially charged with developing and supervising the manufacture of propellers. He was also in charge of testing struts, wires, turnbuckles, bolts, and similar materials. Raymond Ware, '07, served as secretary to the Thomas-Morse Aircraft Corporation. Arthur F. Graham, Jr., '14, was assistant secretary and traffic manager of the Sturtevant Aeroplane Company, which was engaged in building all-steel planes for the Army. Wendell B. Ford,



NC-4 RETURNING FROM A TRIAL TRIP

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'17, served as chief draftsman for the Aeromarine Plane and Motor Company, subsequently becoming a liaison agent for the Bureau of Aircraft Production.

Edward C. Locke, '72, also engaged in the manufacture of various airplane parts under a special contract for the Curtiss Engineering Corporation. His firm built the wings, tail surfaces, cockpits and other parts for a number of the naval planes among which may be mentioned the now famous NC boats.

Several of our men also took an active part in the development of the Liberty motor. One of the unique features of this motor was the valve gear which was invented by Allen Loomis, '99, while working with the Packard Motor Car Company. This valve gear, which subsequently became known as the "Liberty" (patent No. 1,266,288), was first employed on the engine of Ralph DePalma's famous Packard racing car. German agents apparently recognized its value and succeeded in getting hold of the essential features, with the result that the first actual use of the gear in battle was made by the enemy — a fact which caused no little chagrin in the United States when first discovered. Later on Loomis became a consulting engineer in the Bureau of Aircraft Production and made numerous improvements in the various types of aircraft (see page 328).

A very considerable number of Liberty motors were built in the plant of the Nordyke and Marmon Company, under direction of Walter C. Marmon, '95, who is president of the company and of J. W. Stickney, '96, who, as superintendent of personnel looked after the selection of the factory staff.

Others engaged in the development and manufacture of airplane motors were James C. Royce, '97, consulting engineer for Rolls-Royce, Ltd., Charles B. Page, works manager and Theodore F. W. Meyer, '11, production manager and efficiency engineer for the Dusenbergs Motors Corporation, of Elizabeth, N. J. Royce is a member of the management committee of his company in America, and it will be recollected that the Rolls-Royce engine was one of the standard designs used through the war by the British government. Page and Meyer dealt with a very different type of machine, regarding which the latter says, "The Dusenbergs Motors Corporation was originally assigned a contract for the manufacture of 'Liberty' airplane motors, which contract was modified shortly thereafter substituting the French 'Bugatti' — a motor of unconventional type with sixteen cylinders set in two parallel vertical rows of eight each and geared to a single propeller with a 37 mm. cannon mounted between and firing through the center of the hollow propeller shaft. Only one French motor had been built at the time the United States took over the designs, and it was necessary not only to convert the job to American standards but to develop a really practical outfit from a mechanical as well as a production standpoint. This task of development took about nine months, with the result that real production was just being started at the time the armistice was signed. Only forty-five motors were produced, none of which saw actual war service. The Le Père plane, built by the Packard Company, was designed originally to take the 'Bugatti' motor."

F. C. Blanchard, '91, and John G. Lanning, '13, were also engaged in the manufacture of airplane and motor parts, as vice-president and assistant to the vice-president of the Detroit Lubricator Company respectively. Lanning had been rejected for service by both the Army and the Navy on account of defective eyesight. The firm undertook contracts to manufacture accessories for the Le Rhone engines, including the contract for several thousand sets, each set to be made up of the carburetor, oil pump, gasoline-regulating valve, control quadrant, and a few smaller parts. The company was obliged to equip for the manufacture of the Zenith carburetor, which was the standard for the Liberty motor for both the Army and the Navy. This problem proved difficult, but Lanning was able to do some very good work in extemporizing necessary appliances, particularly that for calibrating the jets. The machine used by the Zenith company could not be duplicated quickly enough, and he was obliged to develop a new machine. As a matter of fact, he succeeded in designing one which was more accurate than that previously in use and was also more rapid in operation. At the date of the armistice the company had built twenty thousand carburetors and was manufacturing them at the rate of four hundred per day. In addition to this, it was also supplying force-feed lubricators

AIR NITRATES

for submarine chasers, and was beginning to supply a device of similar type for lubricating the caterpillar tread of large tanks.

The construction of an airplane requires an immense number of screw machine products. One of the most active firms in the United States in the supply of these necessities was the Erie Specialty Company. Here Walter O. Adams, '99, superintendent and later plant manager organized and directed a force of four hundred men—the entire product going into government work. He was most successful in meeting specifications and his company became a sort of authority on the production of small parts for aircraft.

L. L. Custer, '13, as head of the Custer Specialty Company, took an active part in producing release mechanisms for drop bombs.

AIR NITRATES

Mention has already been made of the work of Technology men on the Nitrate Board and in the Nitrates Division of the Ordnance Department (see page 304). In December, 1917, the Air Nitrates Corporation was formed with a staff of twenty men drawn from the staff of the American Cyanamide Company. By August, 1918, there were twenty-three thousand men in the organization. The Government had decided to erect three large plants in addition to the small experimental plants already under construction, the new plants to be located at Muscle Shoals, Alabama, and Toledo and Cincinnati, Ohio. This decision was not arrived at without very careful consideration.

The advantages to be gained from the erection of such a plant may be summarized as follows: In the first place, the United States was engaged in a war in which the principal field of hostilities was in Europe. The amount of shipping available was steadily decreasing, and it seemed not impossible that a point might soon be reached when it would be necessary to curtail the importation of nitrates or to decrease the quantity of men and munitions which were being shipped to Europe, either of which steps would be fatal, unless a new source of nitrate could be provided in the United States. In the second place, in a military sense the United States has always been at the mercy of any power which had full control of the sea, since such a power could cut off its supply of the precious material. In the third place, the building of these nitrate plants would provide a permanent source of fertilizer for agricultural purposes in the United States, thus tending to make the Nation economically independent.

The factors which seemed to render the project inadvisable may be summed up in the statement that if the United States and its allies could maintain the control of the sea, the building of such a plant, so far as it affected the war, would represent a tremendous waste of money, material and men.

The decision seems to have been finally brought about by a cause more or less independent of any of these. This was the discovery that the quantity of toluol which could be produced in the United States was insufficient to load the tremendous quantity of shells desired with pure T. N. T.; it would be necessary to make use of amatol, a mixture of T.N.T. and ammonium nitrate. This instantly caused a tremendous increase in the demand for both nitrates and ammonia. The two factors together made it practically necessary to build plants for deriving these materials from atmospheric nitrogen.

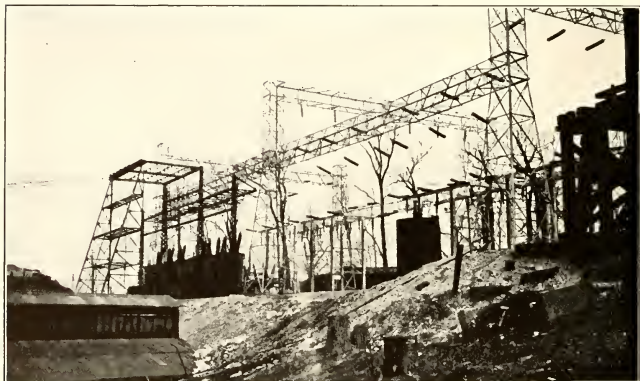
To build these plants and to operate them a special civilian agency was formed known as the Air Nitrates Corporation. A contract was duly awarded to this corporation based upon a cost-plus system, and the contract for the largest plant,— that at Muscle Shoals, Alabama,— was given to Westinghouse, Church, Kerr & Company, Inc.

The site was at this time a cotton field. On January 9, 1918, the first men and material arrived on the ground, and between that date and November 1 there was constructed not only a plant which consisted of ten departments, each housed in permanent buildings of steel and terra cotta, five of which were individually the largest units of their type in the world, but a cantonment was built for over twenty thousand persons. A large permanent town was also built, which was planned by the firm of Ewing & Allen of which Charles Ewing, '97, is a member, the work apparently being delegated by him to Robert A. Pope, '02. Ewing, also handled the workmen's camps at Toledo and Cincinnati, as well as a number of camps and cantonments for the Navy Department.

TECHNOLOGY'S WAR RECORD

A very considerable number of Tech men worked upon one or more of the nitrate plants either as government inspectors or as employees of the Air Nitrates Corporation or of the contracting firm. Among those connected with the work as officers of the Nitrates Division of the Ordnance Department may be mentioned David St. Pierre Gaillard, '11, who is today assistant to the chief of the Nitrates Division, and Captain Stephen L. Coles, '91, who was commanding officer and inspector of construction at Nitrate Plant No. 2, Muscle Shoals, from March 14 to September 30, 1918. The latter subsequently became director of operations at the same plant and remained in this capacity until January 9 of the next year.

Among those of our men engaged in work as employees of the Air Nitrates Corporation may be mentioned Carl W. Keniston, '08, Raymond W. Parlin, '07, John J. Elbert, '09, and Garabed G. Heghinian, '00.



NITRATE PLANT NO. 2, MUSCLE SHOALS, ALABAMA

(W. B. West)

Keniston served as chemical engineer and had charge of the construction and installation of equipment, and also of the first operations of the ammonia gas and ammonium nitrate divisions of the plant. This was no easy task, for the buildings were of large dimensions, the machinery was complicated and more or less delicate, and the whole work was performed under most disadvantageous conditions, perhaps the most serious being the continual trouble with labor. Nevertheless, the plant was in operation on November 7 — two days before the date which had been set and four days before the armistice.

Raymond W. Parlin, '07, planned the operating organization; laid out the scheme for instructing the operators; and hired the force, including the operating superintendents, foremen and more important operators, and personally supervised their instruction. During the latter part of 1918 he had charge of all employment for the Nitrates Corporation and also took part in the starting of the operations at Plant No. 2.

Elbert's work was carried on in connection with design at the central office, and he was assistant in drawing up the plans for all of the larger plants, Nos. 2, 3, and 4.

AIR NITRATES

Heghinian's work was that of assistant engineer on several pieces of work, including chiefly road construction and similar work at Plant No. 2. He also worked in the division dealing with conveying machinery and designing rock crushers used in the work.

Estus H. Magoon, '14, as sanitary engineer, was responsible for the water supply, sewage disposal and other measures in the sanitary system at the immense construction camp maintained in connection with the work. He states that the sanitary-engineering problems were somewhat unusual and difficult; the water-supply system could not be completed until much of the plant had been completed; the mosquitoes were thick and malaria was common throughout the district. Perhaps the best tribute which can be paid to Magoon and the twenty-five men who were assisting him in this work is the fact that the spread of malaria was prevented and no epidemic of typhoid or any similar disease occurred. It is interesting to note Magoon's earlier record, for he had served with



(W. B. West)

THE WILSON DAM

the Red Cross during the years 1915 and 1916 in Serbia and Albania, as a member of the commission headed by Edward Stuart, '10, and had received a gold medal by royal decree of the Serbian ruler.

Among the men connected with the plant as representatives of Westinghouse, Church, Kerr & Company were James C. Boyd, '93, Louis R. Cobb, '86, Percival Clow, '00, William B. Flynn, '99, and George I. Crowell, '16.

Boyd as first vice-president of the company had charge not only of the Muscle Shoals project but of a large number of others throughout the United States, among which may be mentioned design and construction of an extension of the power plant at the Navy's plant at Indian Head and of the government power plant at Newport, R. I.; the construction of the embarkation camp at Newport News, Va.; estimates and recommendations for the government armory at Springfield, Mass.; the purchase of equipment for naval air stations in Ireland; the selection and procurement of mechanical equipment for the solvent recovery buildings at Indian Head; the construction of small arms ammunition plant for the Dominion Arsenal at Lindsay, Ont., Canada, an explosive plant for

TECHNOLOGY'S WAR RECORD

the Aetna Explosives Company at Drummondsville, P. Q., the field artillery ammunition plant at Rock Island Arsenal and many extensions and additions to the plants of Winchester Repeating Arms Company at New Haven, the Savage Arms Company at Utica, the Driggs-Seabury Ordnance Company at Sharon, Pa., the Hydraulic Pressed Steel Company at Cleveland, the Wright Martin Aircraft Construction Company, the Westinghouse Electric and Manufacturing Company at Essington, Pa., and various minor works. It may be of interest to note that Boyd has the honor of having organized the first battalion of the Home Guard in the United States.

Cobb who had charge of the design of all concrete work for the company and Clow as structural engineer exercised supervision over the concrete and steel work for practically all of these jobs. William B. Flynn was an electrical engineer on distribution, power and lighting of the plant at Muscle Shoals. George I. Crowell, '16, served as progress engineer, having worked previously on a shell-forging plant at Cleveland.

It may be interesting to note in passing that much of the apparatus for the plant was supplied by E. B. Badger and Sons Company of Boston, where it was designed and manufactured largely under the supervision of Tech men, of whom more will be said later (see page 398).

The three great plants are more or less alike in design, but No. 2, that at Muscle Shoals, is equal in capacity to the others combined. Atmospheric nitrogen is fixed by means of what is generally termed the cyanamide process, in which calcium carbide is transformed to cyanamide by the action of the electric arc in electric furnaces in which incandescent carbide is exposed to nitrogen gas. By the action of steam cyanamide is then transformed into ammonia, which is subsequently oxidized to ammonium nitrate.

This process requires a tremendous expenditure of power, and at Plant No. 2 at present the chief source of energy is a Westinghouse turbine made up of three sections developing altogether 72,000 horsepower, the unit being one of the two largest in the world. In addition, some 30,000 kilowatts are brought in from the hydro-electric and steam plants of the Alabama Power Company.

Plant No. 2 alone, when completed, cost approximately \$70,000,000, while the construction program as a whole is estimated to have cost not less than \$125,000,000.

The power for this plant was furnished chiefly by the Alabama Power Company, of which Samuel A. Fletcher, '03, is superintendent of service and F. C. Weiss, '13, superintendent of construction. Fletcher not only supplied power to the Nitrate Plant at Muscle Shoals but to an immense number of other auxiliaries. Altogether, the company was supplying no fewer than 2,000,000 kilowatts per month. Only four of the company's customers were classed as nonessential industries. One manganese mine alone used 10,000,000 hours per month, while the Nitrate Plant at Muscle Shoals during its hours of operation absorbed power at a rate of 25,000 to 30,000 kilowatts.

In addition to the general administration of this immense electrical system, Fletcher also replaced a younger man who was in military service and replaced a number of others by women, each of whom had to be especially trained.

The power for Muscle Shoals was supplied in part by transmission lines from the hydro-electric and steam plants at a distance. O. G. Thurlow, '04, was also in the service of the Alabama Power Company and was in charge of the construction of the 30,000 kilowatt plant, which was especially built for this purpose. This power house was located near the coal mines on the Warrior River, eighty-five miles from the nitrate plant, the power being carried over this distance by the usual type of transmission line. The entire plant was laid out, built, and in use in eleven months from the date at which the contract was signed. Weiss also had charge of some exceptionally large projects along this line, among which may be mentioned the 110,000 volt transmission line from the Wilson Dam to Sheffield.

GENERAL CONSTRUCTION

Just as our men in explosive and shell manufacture aided those in the Ordnance Department in the production of shell and explosives, our men in business as contractors aided in producing the immense camps, depots and terminals largely designed by other

GENERAL CONSTRUCTION

Tech men serving in the Construction Division of the War Department. Perhaps the most typical among these was the firm of Stone and Webster which handled some of the largest and most important pieces of work in the United States. In this organization forty-eight Tech men, including members of the firm, were active during the war. To how great an extent this firm is a Technology organization may be realized when it is stated that of the ten members of the firm, seven, namely, Charles A. Stone, '88, Edwin S. Webster, '88, Russell Robb, '88, Henry G. Bradlee, '91, Fred. P. Royce, '99, Harry H. Hunt, '89, and Howard L. Rogers, '93, are Tech men.

It will be recollected that there were four main types of construction in connection with the war. First, there was emergency construction carried on chiefly by the Cantonment Division of the Quartermaster Department. Second, there was the permanent and semi-permanent construction carried on chiefly under the Construction Division of the War Department, though the permanent additions to government arsenals appear to have been handled by the Ordnance Department. Third, there was construction in connection with additions to plants occupied by essential industries, notably those dealing with shipbuilding and munitions. Finally there was construction carried on in the Service of Supply in France. In all of these departments Stone and Webster took a very prominent part.

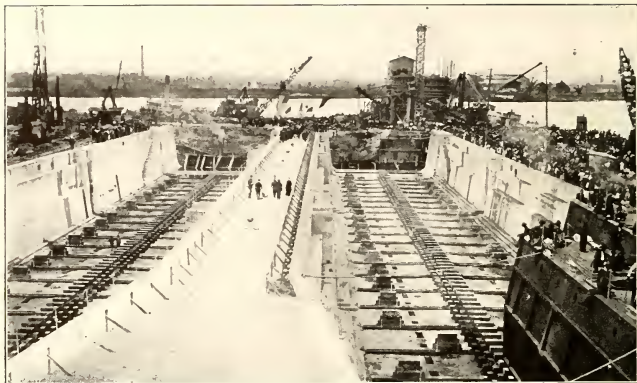
In the matter of emergency work they were charged with the construction of Camp Travis, Texas, which subsequently became the training center of the 90th Division, Kelly Field at the same place, which became the chief training field for aviators in the United States, Camp Wise, also at San Antonio, a center of balloon training, and in conjunction with the F. A. Jones Construction Company, the firm also took a prominent part in the construction of Camp McArthur and Rich Field at Waco, Texas. Altogether it is estimated that Stone and Webster provided housing facilities for more than eighty thousand troops of the National Army, National Guard and Aviation Section between July and October 1917.

The story of the construction of any one of these camps might fill many pages. Suffice it to say that Camp Travis was a cantonment capable of housing 42,800 men. Its cost was \$8,200,000, slightly less than that of Camp Lewis, which has been described on page 319. In all other matters the camp was almost identical with Camp Lewis, the problems met and overcome being very similar. Upon August 31, 1918, Camp Travis was 78.6 per cent completed. That is to say, it was more nearly completed than any other cantonment in the United States and it is said to have been the first cantonment actually completed. The camp at Kelly Field was in some respects even a larger project, as it involved the provision of quarters for some 45,000 men and hangars capable of caring for several hundred airplanes, together with the necessary repair shops. Camp McArthur was a National Guard cantonment capable of housing about 45,000 men, but involving only about \$4,000,000 worth of construction, as many of the men were under canvas. Rich Field was quite similar in its structural features to Kelly Field, but was a smaller project. Camp Travis ranks with Camp McArthur among the cheapest and most efficiently constructed of the emergency camps and cantonments.

In the matter of permanent construction, the Stone and Webster organization was particularly prominent in building additions to government arsenals, notably those at Rock Island, Picatinny and Watertown.

The work at Rock Island included the erection of shops for the manufacture of field and siege guns, a boiler house including equipment, nitrate and ammunition store-houses, various other storage buildings and auxiliary apparatus, and the installation of machine tools. The work at Picatinny included the construction of powder-storage buildings, railroad tracks, a classification yard, roads, fences, barracks and an extension to the power station; it also included the installation of equipment. The work at Watertown included the erection and equipping of a foundry, a gun carriage shop, a rough machine shop, a forging shop, a heat treatment building, a boiler house, a substation and miscellaneous other buildings, together with installation of machine tools.

P. J. Munn, '15, who served as assistant office engineer at the Watertown job, states that the work there amounted to over ten million dollars. The five principal buildings



DRY DOCKS AT THE NORFOLK NAVY YARD, DESIGNED AND CONSTRUCTED
UNDER THE SUPERVISION OF HARRISON S. TAFT, '96

erected have an average length of six hundred feet, and an average width of one hundred and sixty feet, that is to say, they represent the largest type of industrial structures. All are built of brick and steel.

The improvements at Rock Island appear to have been carried out on an even larger scale. The Field and Siege Building is a reinforced concrete structure with dimensions of six hundred by three hundred and twenty feet, and is notable not only for its magnitude but for its architectural treatment. The storehouses erected at this place have an aggregate floor area of more than half a million square feet. All are of the most modern type of construction. At Rock Island alone there were no less than six hundred and sixty-seven buildings erected.

In the matter of providing shops and facilities for essential industries, perhaps the two most important pieces of work undertaken by Stone and Webster were the erection of the great picric acid plant for the Somet-Solvay Company at Grand Rapids, Michigan, which, as we have already mentioned, was to have produced 14,500,000 pounds of picric acid per month, and the construction of the Hog Island Yard for the American International Shipbuilding Corporation. This latter job, which proved one of the most spectacular and difficult feats ever undertaken, will be described in detail a little later (see page 386).

Perhaps the most unique job of Stone and Webster was construction overseas. As every one knows, the greater part of such work was carried on by army engineers, without civilian aid. Only one or two engineering firms sent forces to France at all, but among those who did so was Stone and Webster and the work done by them was perhaps the largest single job carried on in connection with the lines of communication.

In August 1917 Stone and Webster were invited to discuss with officers of the Ordnance Department the possibility of their undertaking the layout and detailed design of the proposed ordnance base in France, the purchase of machine tool equipment, material and supplies, the supervision of the erection of the buildings, installation of machine tools and construction of some auxiliary features. This shop was to be located at Mehun

GENERAL CONSTRUCTION

and as originally planned was to constitute a single group of shops. The base was designed to serve an army of 2,000,000 men and consisted of units for the repair of guns, gun carriage, small arms, tractors, and personal and horse equipment, and for reloading artillery ammunition as well as for the storage of new material and repair parts. The proposed buildings were to cover more than 100 acres of floor space.

In order to distribute the storage facilities to better advantage, the plan was modified by breaking up the plant into seven units located at different points along the lines of communication from our ports of debarkation to the front, although Mehun remained the principal base.

On August 27 the contract was closed and early in September the representatives of Stone and Webster sailed for France, to be followed later by a force of superintendents, engineers and foremen.

It had been realized from the start that plans were likely to require alterations after the material was on the ground. Furthermore, parts of buildings were likely to be lost or sunk in transit, and for these reasons a plan of standard interchangeable units with the smallest possible number of different members was adopted. This plan was thoroughly carried out and permitted reductions or additions to the storehouses and light shops, the breaking up of large buildings into smaller ones, or the use in any building of material intended for another, without alterations or delays. Steel intended for six typical storehouses actually went into 109 buildings varying in size from 20 feet square to 240 feet by 520 feet, involving the purchase of a few hundred tons of additional steel, but not the slightest change in that already fabricated.

Structural steel drawings were completed on September 18 and on the same day orders were placed for the frame work of twenty-eight storehouses and four light shops, involving 13,000 tons of material. Steel for the first storehouse left the shop on October 6, 40 days after Stone and Webster were retained.

The Mehun plant was equipped with railroad facilities, sidings, electric cranes, locomotive cranes, and permanent derricks. In the shops and storehouses were traveling cranes, jib cranes, hand hoists, gravity conveyors, and miles of industrial track. A



ANOTHER VIEW OF THE NORFOLK DRY DOCKS

TECHNOLOGY'S WAR RECORD

complete water supply was installed and an electric transmission line was built connecting the plant with the power station at Bourges.

To obtain sufficient power it was necessary to provide and install additional boiler capacity at Bourges. In this matter Stone and Webster acted as sole representative of the Ordnance Department and the Technical Board (see page 219), and worked in close co-operation with the representatives of the *Ministres de l'Armement* and of the French contractors.

One important part of the problem was the design and purchase of machine tools for the repair of ordnance. The unusual requirements of the service necessitated many new machines and countless special attachments, and in this phase especially valuable assistance was rendered. A group of engineers qualified to handle successfully the innumerable details of this work were very quickly assembled. Time studies were made, sched-



THE QUEEN OF BELGIUM GIVES THE SIGNAL TO FLOOD THE DOCK. TAFT CAN BE SEEN IN THE FOREGROUND WITH HIS HAT OFF

ules of operations established; jigs, fixtures, tools and gauges were designed to meet each special need. Seventeen hundred machine tools were purchased, varying in size from 15-pound hand riveters to motor driven gun boring lathes, 60 feet in length weighing 75 tons.

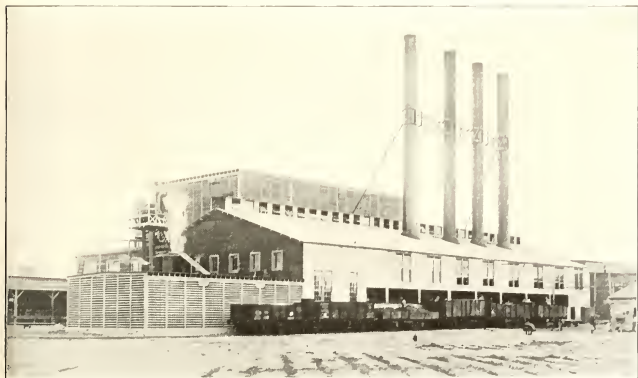
Of the material required for the Ordnance Base in France, amounting to 58,000 tons, about 5000 carloads, or 80 per cent had arrived at the points of erection of installation in France before the armistice, and many parts of the plant were in operation. The cost of the plant when completed was estimated at \$900,000,000 and 20,000 men were specially enlisted and sent overseas to erect it.

Numerous other Tech men engaged with other firms also did brilliant work in war construction. Holbrook, Cabot and Rollins, of which J. W. Rollins, '78, is a member, built the destroyer plant at Squantum for the Navy Department, together with the so-called "Victory Bridge" across the Neponset River, which alone cost a quarter of a million dollars. They later built the slips and wharves for the same plant. They also built the wharves for the Boston Army Supply Base, which has already been described (see

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page 323), together with a wharf and shed some two thousand feet in length at the New Orleans Army Supply Base, the latter project amounting to about three million dollars. All of these jobs were handled directly under the supervision of Mr. Rollins, and were erected in remarkably short spaces of time.

Another construction firm which handled a large number of smaller war construction jobs was the Barney-Ahlers Construction Corporation of which J. G. Ahlers, '10, was one of the organizers. This firm completed structure after structure in record time. Their first war contract appears to have been awarded in November, 1917, when they were called upon to build a base for a squadron of twelve seaplanes at Anacostia, D. C. The work was quickly completed and the Navy Department assigned the firm the work of completing a five-story warehouse at Charleston, South Carolina. The job had been under way for five months, but the first story was still uncompleted. Nine weeks later the build-



(U. S. Official)

THIRD LARGEST ICE PLANT IN THE WORLD — AT GIEVRES, FRANCE. DESIGNED BY LOUIS S. MORSE, '96, AND OPERATED UNDER DIRECTION OF MAJ.-GEN. HARRY L. ROGERS, '96

ing was finished. Following this came three more Navy contracts; the concrete structural work for a power house and coal pocket, the big seaplane hangar at Rockaway used by the NC boats before their ocean flight, and a pier for the submarine base at New London. In the meanwhile the Army also made use of the firm in building emergency warehouses at Hoboken. When Ahlers asked how soon these warehouses would be needed, the Constructing Quartermaster replied, "Day before yesterday." Two warehouses were planned, each of which was to be 504 feet long by 70 feet wide. The contractors were allowed twenty-one days as a reasonable time, and the estimated cost was \$1.12 a square foot. The buildings were completed in fifteen days at a cost of less than \$1.05 a square foot. As a result of this achievement, four more buildings were immediately ordered. The entire six buildings were completed in exactly forty-two working days.

The Navy found it necessary to make many additions in their plants throughout the United States, and a very considerable number of Tech men did work in connection with their construction program. Perhaps the most interesting piece of work in this connection was performed by Harrison S. Taft, '96. Shortly after the outbreak of war

TECHNOLOGY'S WAR RECORD

he was engaged as superintendent of construction upon a cantonment for three infantry regiments at the Presidio of San Francisco. This cantonment consisted of 210 one-story wooden buildings, all of which were ready for occupation eighteen days after work was commenced. After the completion of this work he appears to have been employed as a consulting engineer for the Navy Department in working out and standardizing methods and forms for various types of concrete docks under the Bureau of Yards and Docks. Later on, as general manager for the George Leary Construction Company of New York, he took personal charge of the construction of three dry docks Nos. 4, 6 and 7 at the Norfolk Navy Yard.

Dry dock No. 4 is said to have been the most complicated reinforced concrete structure ever built for the Navy Department. The dock is of the largest size, being 1,000 feet in length and 144 feet in width; its depth is 51½ feet. In its construction 625,000 cubic yards of earth were excavated and 185,000 cubic yards of concrete were poured and reinforced. The dock is capable of handling the largest ships now afloat and will probably be able to handle any which may be designed in the future unless radical changes take place in the world's harbors and ship channels. Work was begun in January, 1917, and the entire job was completed two years and three months later, a feat which is said to constitute a record in the United States.

Dry docks Nos. 6 and 7 were built for the United States Shipping Board and are considerably smaller, each being 471 feet in length and a little over 76 feet in width. Work was begun on these in August of 1918, so that Taft and his associates were obliged to handle the construction of all three jobs at once. The work on these jobs was completed in October, 1918, and the docks were flooded in the presence of the royal party of King Albert of Belgium, the Queen, herself, giving the signal to swing open the gates. It is said that the rapidity of construction of the three docks has set a new world standard for this type of construction.

Another piece of work of exceptional interest was that of Louis S. Morse, '96, Engineer-in-Chief of the York Manufacturing Company. Morse's particular duty was the design of refrigerating machinery and auxiliary apparatus for United States Army and Navy, Department of Interior, and for corporations whose manufactured products were utilized by the Government in the prosecution of the war. He designed most of the carbon dioxide and ammonia compression refrigerating machines which are now used by the Navy and Emergency Fleet Corporation. Perhaps his most interesting piece of work, however, was the design of the five thousand ton beef storage plant for the American Expeditionary Forces at Gievres, France. This plant was one of the three largest refrigerating plants in the world, and it is interesting to note that it was operated under Major General Harry L. Rogers, '89, Quartermaster General of the American Expeditionary Forces (see page 210).

SHIP CONSTRUCTION

Some mention has already been made of the work of Commander James Reed, Jr., '07, and others in connection with the building of the destroyer Ward. Destroyers were built not only at government owned yards but at private yards throughout the United States. Perhaps no plant engaged in this work has a longer or more honorable record than the Bath Iron Works, Limited, of Bath, Maine. For many years this company has been engaged in turning out destroyers for the United States Navy, and time and again its vessel has proven the swiftest and most reliable of its class.

During the war the plant was engaged exclusively in the production of destroyers for the United States. Eleven of these were built at the works in accordance with the company's design. This design which came to be known as the "Liberty" was adopted as standard throughout the United States and destroyers were built from it at Cramp's, Newport News Shipbuilding and Dry Dock Company, New York Shipbuilding Corporation, Norfolk Navy Yard, Charleston Navy Yard and Mare Island Navy Yard. Among those built at the last place mentioned was the Ward. (See page 249.)

A considerable number of Tech men occupied positions of importance at Bath, among whom may be mentioned C. P. Wetherbee, '91, vice-president and superintendent

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ing engineer, W. S. Newell, '99, engineering works manager, and F. W. Baker, '93, assistant superintendent of construction. During the war H. W. DeLong, '96, was general storekeeper and Francis G. Cooke, '11, served as assistant to Baker on hull construction. D. O. Hooper, '15, as assistant in the engineering and scientific department, worked especially upon the balancing of turbine rotors and W. E. Ash, '15, in the engine drafting room laid out the piping for the destroyers.

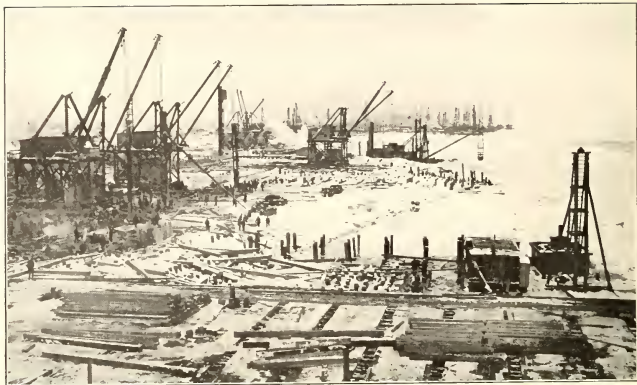
A number of other Tech men were engaged in destroyer work at various plants, particularly at the Victory Plant at Squantum which was built by the Government but operated by the Bethlehem Shipbuilding Corporation. This corporation is also engaged in the building of merchant vessels, and it is somewhat difficult to separate the activities of the men engaged upon each.

William Binley, Jr., '97, as assistant naval architect of the corporation, served on the central technical staff at Bethlehem, and in this capacity exercised general supervision over the design of naval vessels and troop ships built by the company. Altogether the company turned out more destroyers than all the shipyards in the country combined. One of the first to be completed had covered forty thousand miles by the spring of the next year, and all have given excellent service. Gordon G. Holbrook, '10, served as assistant superintendent both at the Squantum and Quincy plants, having charge of the dock work on the destroyers. Ralph C. Henry, '96, served as assistant to the night superintendent at Squantum, having charge of the completion of the hulls of the unlaunched destroyers, especially those portions aft of the boiler room. He says regarding the work, "Outside of the structural interest, from the points of view of design and engineering, I found the chief interest in the effort to help evolve an efficient and enthusiastic organization which finally learned to merge individual interests into collective effort to the end that sound hulls should be launched with the greatest possible speed. This meant that the long-standing and inherent shipyard labor animosities had to be largely overcome through stimulation to patriotic effort, and that the work had to be so co-ordinated as to avoid inefficient overlap as between assignments of day work and night work. This much accomplished on the ships was continuous and steady, night and day."

Other Tech men were engaged in the operation plant, among whom may be mentioned Albert C. Ferry, '04, who was in charge of the electrical department at Squantum, and Douglas W. Smeaton, '09, civil engineer at Fore River in charge of ordering and transferring material used in the destroyers. Paul Connor, '15, was engaged in drafting work, and in taking data during destroyer trials. Fiske R. Jones, '15, supervised the design of the tool department and subsequently designed and purchased tools, dies, jigs and fixtures for all the machine tools; still later he supervised their installation and maintenance. He also organized and operated the central tool department, reclaiming department and electrical welding department for the destroyer plant. In this connection a special study of electric welding was made by which it was possible to greatly increase the rate of production. The force of welders organized by Jones was the largest group of these artisans ever worked on destroyers. His most interesting experience, so he states, was that of pressing the electric button which started the first machine in the plant. This machine punched the first rivet hole in the first plate for the first of the thirty-five destroyers constructed.

While destroyers were considered the most necessary type of craft during hostilities, merchant shipping was almost equally essential. By September 1917 the allied tonnage was seven million dead-weight tons below that of the year 1914. The normal growth of commerce would have resulted in the increase of eight million tons. There was, therefore, at this date a deficit of fifteen million tons below the common needs of the world. The actual loss since January 1917 had been no less than five million tons and the situation was truly alarming. A survey of all shipyards in the country showed that it might be possible to launch 3,000,000 tons in the next eighteen months. The accepted methods of shipbuilding could do no more. A new method of construction was absolutely imperative. Such a method was proposed by George J. Baldwin, '77, senior vice-president of the American International Corporation of New York of which Charles A. Stone, '88, is president.

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THE HOG ISLAND WATER FRONT, FEBRUARY 2, 1918

As early as 1916 the American International Corporation had become interested in shipping. At that time it had investigated various shipyards along the Atlantic coast and had selected that of the New York Shipbuilding Company at Camden, New Jersey, as the best organized and most efficient. In November, 1916, the yard was purchased by the American International Corporation and was reorganized as the New York Shipbuilding Corporation. Baldwin was elected chairman of the board of directors and H. A. Magoun, '85, senior vice-president.

Funds were immediately made available to provide increased capacity, and a goodly proportion of the three million tons which were on the ways at the outbreak of war were under construction in this yard. After the United States entered the contest two new yards were added, one of which was especially designed to handle destroyers for the Navy and the other to build troop transports for the Emergency Fleet Corporation. The company also constructed for the Fleet Corporation a large housing project known as Yorkship village.

The record of the Camden yard throughout the war was brilliant and its reputation for efficiency was well maintained. Its daily rivet drive of 306 rivets per gang was the highest in the United States. It was from this yard that the "Tuckahoe" was launched twenty-seven days after her keel was laid. She was a ship of 5500 deadweight tons and such a record was absolutely unheard of. Many people believed that a ship so rapidly built could not be seaworthy and German agents set about spreading all manner of tales concerning her. As a matter of fact these stories are without foundation. Thirty-seven days after her keel was laid she was accepted by the Shipping Board and five days later had delivered her first cargo of coal after making the trip from Norfolk to Boston. Her subsequent performance has been excellent and except for some slight trouble with an ash ejector after she had been at sea some months she has never met with the slightest mishap.

It is perhaps of interest to note that the "Mongolia" which was the first American ship to sink a German submarine was an earlier product of the Camden yard.

Returning to the situation at the outbreak of war it appeared that in addition to

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the three million tons under construction, at least three million more would have to be launched in the next eighteen months. Investigations already completed by the International Corporation indicated a solution of the problem, and in May, 1917, Mr. Baldwin presented to General Goethals a scheme for manufacturing ships of standard design in quantity. The plan went a step further, for it proposed features of design which would permit the steel work of the ship to be fabricated at various bridge works and assembled at a yard on the seaboard many miles distant.

Such a plan called for great skill in design for it was necessary that the ships should be seaworthy and yet the graceful curves characteristic of the accepted types of seagoing vessels had to be largely eliminated. The staff of the New York Shipbuilding Corporation was called upon to co-operate with Messrs. Stone and Webster in drawing up plans for such a ship, and these organizations succeeded in producing three remarkable designs, with flat decks, flat bottoms and flat vertical sides, which nevertheless could be depended upon as reliable sea boats. The same men subsequently developed the templates for these designs; these templates were sent to shops all over the United States and so excellent were they that practically no refitting was found necessary when the ships were assembled — a noteworthy feat.

The scheme after some delay was adopted and arrangements were made by which the American International and two other corporations were to furnish the entire three million tons. It was planned that half of this amount should be built by the American International in the form of two hundred 7500-ton vessels. There seems to have been some further hesitation about awarding the contract however, and several alterations in the program took place before work was actually started.

Finally on September 13, 1917, the contract was awarded to the American International Corporation which in association with Messrs. Stone and Webster and New York Shipbuilding Corporation especially created the American International Shipbuilding Corporation as a subsidiary to handle the construction of the standard ships. D. P. Robinson, '92, was president of the new organization, while H. L. Rogers, '93, and F. W. Wood, '77, served as vice-presidents. Wood was especially well fitted to assist in such an enterprise, having for several years been in charge of the Maryland Steel Shipbuilding Plant at Sparrows Point, Maryland; he has been one of the principal men at Hog Island and the excellent quality of the ships produced may be largely attributed to his competent advice. The contract called for the construction of a shipyard estimated to cost \$21,000,000, though subsequent enlargements in the size of the project involved a considerable increase in the estimate, and the building of fifty 7500-ton cargo ships. A little later sixty more of these ships were ordered, together with seventy 8000-ton troop ships. The cargo ships known as the A type were expected to cost \$1,050,000 apiece, while the troop ships, which were designed for greater speed, were estimated at \$1,650,000. All money expended was to be that of the Government. The yard was to be built at cost and for each A ship the contractors were to receive a fee of \$41,000 and for each B ship \$65,000; these fees were to be substantially increased if the ships cost less than the estimated price. The original estimate called for an expenditure of more than \$200,000,000 and was therefore the largest undertaking ever handled by a private contracting firm; with the exception of the Panama Canal it was the largest ever undertaken by the American Government.

The American International Corporation had already studied every location on the Atlantic coast, which might prove suitable as a shipping terminal and no time was lost in selecting the site of the yard. The point chosen was Hog Island, a low-lying and more or less marshy piece of land on the Delaware River, a short distance below Philadelphia. It was most unpromising in appearance but it was close to deep water, good rail connections and a large reservoir of labor; it was also well protected against possible raids by hostile war vessels.

Immediately after the award of the contract to the American International Corporation, the construction of the yard was delegated to the firm of Stone & Webster, of which as we have already noted, seven Tech men are members (see page 377). The latter, immediately sent out a call for experienced engineers in all parts of the United States, and within less than a week had actually assembled four hundred experienced construction

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superintendents and foremen at Hog Island. A week later the brush had been cleared from the Island. Within two weeks bunk-houses were going up and in nineteen days the first piles were being driven. The dredging of the basin where the ships were to be fitted out and the filling of the marshy land had already commenced.

Unfortunately, however, five months had been lost during the precious summer of 1917 before the award of the contract, and conditions were no longer what had been expected. During the months of December, January and February there were only thirty-one days in which average temperature was above freezing. More than 120,000 piles had to be driven through ground which was frozen solid to a depth of forty-five inches. It was necessary to blast the hole for every pile, or to thaw the ground by steam. The supply of piling was inadequate. The Newark Terminal and other projects were also calling for piling, and the forests where the timber had to be cut were experiencing weather con-



LAYING THE FIRST KEEL, THAT OF THE QUISTCONCK, AT HOG ISLAND, PA., UNDER THE SUPERVISION OF JAMES D. MACBRIDE, '99

ditions such as had not occurred within the memory of man. Frequently the trees were frozen solid, and upon being felled burst into splinters. The lumbermen would not work in such weather, and finally it became necessary for the Government to send battalions of soldiers to get the lumber out. The dredges carried on their work in a river where the ice had formed to a depth of over a foot; at certain stages of the tide it was almost impossible to continue the work. When the estimates had been made it had been supposed the trenches for water pipes and sewers could be dug by hand or could be excavated with light steam shovels, but it was necessary to use two tons of dynamite a day to get the earth into such a condition that it could be handled by American steam shovels of the type generally used for handling fragments of rock. The work resembled hard rock mining more nearly than excavation. Cinders for filling depressions arrived frozen solid and had to be thawed by steam, and kept warm while being distributed. Furthermore there were labor difficulties. Housing facilities were provided as rapidly as possible, but they could not be created at once, nor could arrangements be made to supply many men with food under such weather conditions. Any one who has ever attempted to work in the open air

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in the presence of salt water in winter can imagine the conditions under which the workmen labored. It is small wonder that the labor turnover was large; and it proved tremendous. Under such conditions it is useless to talk of the estimated cost; indeed at that time price was considered of little importance. The one great object was to get the plant finished and get the ships into the water before our army was defeated by the hostile submarines. The price was heavy but it had to be paid. It was an inevitable penalty of unpreparedness and hesitation in the face of the enemy. Money was spent but progress was made.

At the end of one hundred and fourteen days the last pile had been driven. At the end of one hundred and nineteen days the basin was dredged. By February 2 there was perhaps no great change visible to the eye of the average citizen. Millions had been spent, and thousands of workmen had been hired and had quit the job. Rival shipbuilders



GENERAL VIEW OF THE SHIPWAYS AS SEEN FROM THE RIVER — HOG ISLAND, PA.

and hostile agents were circulating stories of inefficiency and waste; criticism came from all sides. Yet to the eye of the trained observer the thing which perhaps was most notable was not how little had been accomplished, but rather how much of the work had been completed. It had been a terrible winter, but the time had not been lost. The piles were driven. The foundations for the shipways were laid, water-piping and other utilities had been installed, the steel for the ships had been ordered and much of it had been rolled, punched and fabricated. Quarters for the workmen were nearing completion, and the labor turnover was becoming less severe. The work which had been done during the past months was for the most part hidden beneath the surface of the ground, but now with the coming of summer the whole area was ready to burst into visible activity.

By the first of March even the most inexpert could see what was happening. Upon February 12 the keel of the first ship, the *Quistconck*, so called from the original Indian name of Hog Island, had been laid. By the end of March, four more were under construction. By the end of April, seven others were taking shape. Ten more were constructed in May and one year from the date of the signing of the contract, forty-three of the fifty ways already had ships upon them in various stages of completion.

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The first launching took place on August 5 when the "Quistconck" which had been 174 days on the ways slid into the water. It is of interest to note that the keel of the "Quistconck" had been laid under the supervision of James D. MacBride, '09. MacBride had from the beginning of the war been intimately associated with shipbuilding. Within four hours after the declaration of war the Government requested him to take charge of some of their work at the Charlestown Navy Yard. He was, however, at that time busy on the design of eleven submarine chasers, and upon the completion of this work was appointed superintendent of ship construction at the Maryland Shipbuilding Company. The yard was a new one and it was necessary to lay out and build the yard, but by the winter of 1917 the plant was in operation, two keels had been laid and work was progressing on others. MacBride then applied for and obtained a position with the American International Shipbuilding Corporation. He became superintendent of the first division of ten ways and as a result supervised the construction and launching of the first ships. Later on he was placed in charge of education of skilled workmen for the yard.

Perhaps a word should be said about the "Quistconck." When launched she had not been completed so far as it subsequently became customary to carry the ships on the ways, and as a result there was more work to be done in the wet basin than was generally the case with the ships which followed her. This fact taken with the general prejudice against fabricated ships existing in the minds of many seamen, the jealousy of rival shipbuilders and the work of a few clever German agents gave rise to the story that the ship had leaked so badly that she had had to be towed to a dry-dock. This story is absolutely without foundation. The ship remained in the wet basin 120 days and on November 7 completed her trials and was shortly afterwards accepted by the Shipping Board. Since then she has sailed 60,000 sea miles and has never been in dry-dock excepting once when after covering 37,000 miles she was laid up to have her bottom scraped.

The next ship to be launched was also one of MacBride's, the "Saccarappa" which was 151 days upon the ways and 128 days in the basin. As time went on the length of time necessary to complete a ship became steadily less as the plant organization increased in skill, until ships were being completed in the neighborhood of two hundred days with a single shift working forty-four hours a week. At the date of armistice the "Quistconck" had passed her trials while three other ships had been launched and were nearing completion. By February 1, 1919, five ships were delivered or ready for delivery, ten more were more than eighty per cent completed, and the first fifty had reached an average completion of 60.8 per cent.

The size of the completed plant is simply stupendous. It is $2\frac{1}{4}$ miles in length, and stretches over 925 acres of ground. It is equipped with fifty ship ways and seven piers, each 1,000 feet in length and capable of handling the largest seagoing freight-carrying vessels. By working day and night a 7500-ton ship can be launched from each way every ninety days, which gives the yard a capacity of 1,500,000 tons a year,—almost four times the total shipbuilding capacity of the United States before the war. The plant is equipped with thirty-six warehouses, with a floor space of more than forty acres; the largest building is of the best steel and concrete construction. Housing accommodations have been provided for some 26,000 men. The ways and buildings required for their construction 150,000,000 board feet of lumber, and 151,000 piles of average length of 45 feet were driven to provide foundations. The entire island is provided with water, sewerage and drainage systems equivalent to those of an average town of 30,000 inhabitants. Other public utilities are installed upon the same scale, the electric-lighting system having a capacity of 24,000 kilowatts, and actually using 130,000 kilowatt-hours per day. The inside wiring alone required 379 miles of wire, while 101 miles of wire were strung overhead. There were no less than 3,013 miles of telephone wire installed in the plant, and the daily traffic compares with that of such cities as Erie, Reading and Lancaster, Pa.

This tremendous project was handled entirely by the American International Shipbuilding Corporation to the construction and operation of which the three great corporations already mentioned were giving their best efforts. It was handled at cost, no fee whatsoever being charged and no profit made in connection with the work. It has been said that the work ranks with that of the Panama Canal, and this is true, not only

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AIRPLANE VIEW OF HOG ISLAND

in size but in the conditions under which it was put through. Just as the builders of the Panama Canal were obliged to fight the tropical heat, tropical diseases and hostile criticism, so the constructors of Hog Island were faced with ice and cold, the treachery of foreign agents and hostile criticism of every variety. Nevertheless the work was completed and stands today as a monument to the ability and perseverance of its builders.

The ships and the methods of construction employed are fully as remarkable as the yard itself. The A ships are 401 feet long and have a speed of $11\frac{1}{2}$ knots, while the B ships are 450 feet in length and attain a speed of 15 knots. Both ships are equipped with Babcock and Wilcox boilers, burn fuel oil and are propelled by geared turbines of the General Electric Company's type. The ships, due to the peculiar conditions governed by their design, are somewhat unusual in appearance, the lines being very straight and severe so that they superficially resemble warships more than merchant vessels. Of their seagoing qualities, however, there can be no doubt, for all have been given the highest possible rating both by Lloyd's and the American Bureau of Shipping. Altogether vessels built at Hog Island have sailed over 150,000,000 nautical miles and have carried upwards of 1,000,000 tons of cargo, all without any accident attributable even in a remote degree to design or construction. On the contrary the excellent manner in which these ships were built has been demonstrated upon more than one occasion, perhaps most notable being the adventure of the ship "Liberty Glow."

The "Liberty Glow" was the thirty-sixth vessel to be launched. She had traveled some 11,000 sea miles when on December 5, 1919, in the North Sea she struck a mine which exploded beneath her keel and blew her in two, her bow and stern being held together by nothing except the deck plates and the upper side plates. The limiting bulkheads fore and aft, however, held. The ship anchored and a radio message was sent for help. During the night the wind began to rise and the thermometer to fall. A tremendous sea was soon running and the crew, becoming terrified, left the ship in one of the small boats. A few days later they were found frozen to death. The captain remained at his post. About four o'clock in the morning of December 6, the ship broke in two, and the stern, manned only by the captain began to drift toward the Dutch Coast, where it went ashore, the

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captain being rescued next morning. On investigation it was found that the cargo holds, except the one ruptured by the mine, were still tight and no cargo had been damaged. A search along the beach a little later disclosed the bow of the ship which had dragged anchor. Investigation again disclosed that the bulkhead had held, and the cargo with the exception of that immediately above explosion was undamaged. It is doubtful whether any other ship has ever passed such a test.

The methods of fabrication at Hog Island are most noteworthy, and may perhaps point the road toward the recovery by the American Merchant Marine of much of its previous prestige. Standard plates, rivets and beams are used throughout. They arrive at the yard cut to length, properly punched and formed, and with about ninety-seven per cent of the fabrication complete. On arrival they are carefully sorted into unit carloads. Thus, the material for a certain bulkhead is placed complete in one pile ready to be loaded upon a car by a traveling crane and delivered to the ways. When loaded it is so arranged that that piece which will be first needed at the ways is the first to come off, the rest following in their proper order. The sequence of the various loads is also arranged in advance so that it is only necessary for the superintendent at the ways, when he has completed the erection of one set of steel, to call for the next and it will come to him complete to the last rivet and liner. For this purpose no fewer than ninety locomotive cranes are used, aided by nearly five hundred cranes of other types including among others one of one hundred tons capacity, especially provided to lift the heavy turbines into ships of the B type.

It was anticipated when the plant was designed that in many cases plates and other parts delivered at the yard would not fit perfectly, and accordingly a correction plant of considerable capacity was provided. As a matter of fact this plant was never utilized for that purpose since the materials delivered have almost without exception fitted perfectly, a fact which reflects tremendous credit upon those responsible for the original templates, and upon the thirty-five hundred manufacturers in all parts of the country who supplied the materials.

While the system of fabrication at the plant was almost perfect, during its early days progress upon the ships was slow. In August, 1918, the average drive was only 104 rivets per team per day and much of the other work dragged in the same manner. This was due to the fact that the supply of workmen skilled in the shipbuilding trade at the outbreak of war, had been practically negligible, and that the men subsequently engaged in it were, almost without exception, entirely inexperienced in their new work. Mention has already been made of how this problem was handled (see page 341), by the Shipping Board and of how the Education and Training Section undertook to remedy these conditions (see page 344). A school was established at Hog Island with some seventy instructors directed by J. D. MacBride, '99. Within a very few months revolutionary results were accomplished. By December the rivet drive per gang per day was 242 at an average cost of \$5.093 per rivet. This made Hog Island one of the most efficient plants in the country.

The American International Shipbuilding Corporation co-operated actively in the work of rehabilitating wounded and injured soldiers. Hog Island was one of the first plants in the country to employ wounded men, and it would appear that these men were placed where they were able to do a man's work and were paid the full rate of wages. A number of them working as signalmen received seventy-five cents an hour, while others filled such positions as chauffeurs and material checkers at \$30.00 a week. Subsequently the policy of the Vocational Training Board which required that men should go into occupations which were expanding resulted in a decrease in the use of such men at the yard, but had the war continued, it would have probably furnished an excellent opportunity for providing work for crippled men.

Throughout its history, Hog Island was largely administered by Tech men. M. C. Brush, '01, who is now the president of the American International Shipbuilding Corporation states that there were at least 250 of our men on the job at one time or another. The early work of construction was undertaken under the direction of D. P. Robinson, '92. In December, 1918, he was succeeded by Frederick Holbrook, who is not a Tech

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man but the latter was succeeded by Brush, under whose direction most of the ships were launched and completed. H. L. Rogers, '93, and F. W. Wood, '77, served throughout as vice-presidents. Among other Tech men who might be mentioned are: I. C. Horton, '84, W. H. Blood, Jr., '88, C. F. Wallace, '92, J. D. MacBride, '99, D. E. Maxfield, '00, E. G. Allen, '00, W. W. Dow, '01, W. F. Davidson, '01, H. T. Winchester, '03, S. B. Tuell, '03, W. B. Ferguson, '04, L. H. Parker, '05, A. W. Geist, Jr., '06, W. P. Bearce, '06, Joseph Pope, '08, George Schobinger, '08, L. S. Goodman, '08, W. L. DuBois, '09, C. A. Johnson, '09, E. S. Clark, '10, Abbott Allen, '10, W. K. Brownell, '10, C. A. Schafer, '11, C. D. Davis, '12, E. H. Schell, '12, S. C. Sargent, '12, A. F. Brewer, '13, R. D. Waterman, '15, C. W. Wood, '15, R. F. Gunts, '16, A. D. Pette, '16, H. L. Miller, '18, J. K. Pearson, '18, J. T. Sattels, '18, S. A. Hoyer, '18, P. M. Strang, '18, F. C. Spenner, '18, D. H. Lovejoy, '19, Donald Levering, '19, Kenneth Wood, '19, H. T. Dennison, '20, M. C. Hall, '20, W. K. Avery, '21, and A. H. Stevens, '21.

In closing it may be well to summarize the work of our men in connection with the Hog Island Yard. At the time of its inception, the building of the yard appeared an absolute necessity. Every plant in the country was already operating at capacity, and after all possible expansion had been made, facilities were insufficient to take care of the tremendous and vital demand. Had work upon the plant begun in the spring of 1917, or had the war lasted a little longer, the ships from this plant might well have played a decisive part in the struggle.

The sudden collapse of the Germans in the fall of 1918 prevented the yard from thus fulfilling its original mission. It nevertheless represents one of the world's greatest engineering achievements, and has proved of tremendous value to the Government as a business investment. When the contracts are completed, the Government will have received 921,000 tons of excellent shipping, together with a shipyard which is today in excellent condition, and which has been estimated as being worth as much as \$100,000,000 as a shipping terminal. Even supposing it to be worth but a half that figure, either as a terminal or as a shipyard, and deducting this figure from the total cost of yard and ships, which has been estimated at about \$220,000,000, it will be found that our men at Hog Island, in spite of every difficulty, in a space of a little over two years will have furnished the nation with nearly a million tons of excellent merchant shipping at a cost which lies in the neighborhood of \$180 a ton. Such an achievement will be found hard to match in the annals of war or engineering.

To gain a true conception of the efficiency with which the Hog Island project was carried through, it should be compared with the standard shipbuilding program of England, a nation which has long been considered preëminent in ship construction. Work was started upon the British yards two months before the contract for Hog Island was awarded. By March, 1920, only two ships had been launched and none completed. At the same date Hog Island had already launched ninety-eight ships, of which eighty-three were already in service.

Hog Island, though by far the largest, was by no means the only shipbuilding project organized and directed by Tech men. The Newburgh Shipyards, Inc., was organized by Thomas C. Desmond, '09. This company was awarded contracts for ten 9,000-ton dead-weight steel merchant ships. The yard employed about thirty-three hundred men and the progress made was most satisfactory. Previous to organizing the company Desmond had been prominent in war activities of a very different nature. Even before the declaration of war, at the request of Ex-President Roosevelt, he had undertaken to organize three thousand engineers into the engineer regiment for Roosevelt's proposed volunteer division. He later became a member of the National Security League and was credited with having helped organize the Vigilantes (see page 352).

Two of our men, F. W. Lord, '93, and Thomas P. Curtis, '94, took prominent part in wooden shipbuilding work. Lord is president of the Lord Construction Company of which Curtis is vice-president. This company was engaged in wooden ship construction in District No. 2 and is credited by the district supervisor with having been largely instrumental in enabling this district to launch the first standard wooden ship, and also with having enabled this same district to lead all other Atlantic Coast and Gulf Coast Districts

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throughout the period of most rapid construction. The company's plant at Providence, which was chiefly charged with equipping the vessels, was credited by government officials with having done its work quicker, better, and at ten per cent less cost than any other yard engaged in the same type of work.

Curtis, not content with helping to direct the activities of the company, also joined the Volunteer Ambulance Corps of Massachusetts as a "private," becoming ultimately its "captain" and commanding officer. As such he directed twenty motor ambulances which met transports to pick up wounded soldiers. All incoming ships were met and, in addition, the organization carried over five thousand influenza patients to various hospitals.

P. R. Parker, '03, as general manager of the Benicia Shipbuilding Corporation and Moses J. Look, '92, as chairman of the executive committee of the board of directors of the York River Shipbuilding Corporation of West Point, Va., and as vice-president of the Kingston Shipbuilding Corporation of New York, were also engaged in getting out wooden ships. Look, in addition, served as the representative of Winston & Company, who were in charge of construction work at Camp Abraham Eustis and the balloon school at Lee Hall, Va.

Besides steel and wooden ships a certain number of the composite type, that is to say, ships with steel frames and wooden hulls, were also built. The framework was generally fabricated at some bridge works and the first of these to undertake a contract for the fabrication of the entire steel work of a ship was the Federal Bridge and Structural Company of which Charles J. McIntosh, '03, is president. Later on the company, under his direction, fabricated an immense amount of steel for the Submarine Boat Corporation and other shipyards engaged in the quantity production of steel ships. McIntosh received a commission in the Engineer Officers Reserve Corps but was relieved from active duty in order to continue to aid in the construction of ships.

Yet another type of ship built as a result of the emergency were those of reinforced concrete. The introduction of this type of vessel seems to have been due, in part at least, to a report rendered the Council of National Defense by Benjamin A. Howes, '97, on



SUBMARINE CHASERS UNDER CONSTRUCTION AT A SMALL SHIPYARD

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concrete ships and how they might assist in the emergency. The report included an outline program for developing the necessary yards and material for the construction of three million tons in three years. Howes also sent in another report to the Committee on Congestion at the Port of New York in which he outlined certain emergency construction which would decrease the congestion and permit the release of shipping for war work. A number of his recommendations were subsequently adopted.

The concrete shipbuilding program developed rapidly and a number of Tech men took prominent part in it. Among these was Archibald Gardner, '02, manager of the concrete shipyard at Jacksonville, Florida. This project included the construction of a yard costing approximately one million dollars, and eight concrete tankers. During the construction of the yard Gardner served as chief engineer and later became its manager. The work was difficult, since it required the training of a force of about one thousand green men in the most difficult type of concrete construction.

Another of the yards building concrete ships was that of the Liberty Shipbuilding Company at Brunswick, Georgia. The plans and specifications for these ships, of which there were fifty, each of three thousand tons, were drawn up by Professor Owen of the Department of Naval Architecture, assisted by experts of the United States Shipping Board.

F. O. Adams, Jr., '07, as draftsman and Paul S. Howes, '15, as a concrete engineer in charge of the reinforced steel section, took part in the construction of these ships. Howes, who, by the way, had also been connected with Stone & Webster in construction of the Ordnance Depot in France and with the Fred T. Ley Construction Company in the erection of the Ammonium Nitrate Plant at Perryville, Maryland, and the Picric Acid Plant at Brunswick, Georgia, says regarding the ships: "The work was new and extremely fascinating. The difficult bending, its accuracy in fitting the forms and the jigsaw puzzle of putting it together, made life most enjoyable in spite of delays. The first ship, christened the 'Atlantis,' was launched in December, 1919."

Other Tech men were engaged in building of smaller craft and various auxiliary activities. Nathaniel G. Herreshoff, '70, president of the Herreshoff Manufacturing Company, is better known as a builder of defenders for the America's cup than as a constructor of war vessels. During the war, however, his plant was engaged in the construction of scout boats, patrol boats, pontoon barges and hydroplane hulls, and pontoons.

James W. Hussey, '00, as naval architect with the Greenport Basin & Construction Company designed and constructed forty units for the Russian Black Sea submarine defense fleet. He also designed nine fast express-cruisers for American owners, which were subsequently incorporated into the submarine patrol fleet of the United States Navy. He supervised the construction of a number of small ships for the Quartermaster Department and the rebuilding and repair of numerous vessels, including among others the converted yacht "Zoraya."

It may be of interest to note that all of these ships which were intended for carrying troops were equipped with elliptical life rafts and floats. Ten thousand of these were built for the Navy by the Athens Shipbuilding Corporation of which Frank S. Howland, '94, was treasurer. The company also supplied many of the lifeboats used on naval and merchant vessels.

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The chemical industry in the late war was closely associated with the munitions industry; in fact, it is rather difficult to separate the two. As we have already seen, a great number of Tech men working in the plants of some of the largest producers of chemicals in the United States were giving their entire time to the manufacture of explosives, and indeed there were very few chemical firms in the country which were not manufacturing explosives or the raw materials from which explosives and poisonous gases were produced. A typical case is that of the Merrimac Chemical Company, of which Henry Howard, '89, was vice-president, and of which Salmon W. Wilder, '91, is now president. Eighty per cent of the output of this plant, which ran at the maximum capacity, was employed directly or indirectly in the manufacture of munitions or explosives. At least

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two of the company's products, picric acid and T. N. T., were excellent explosives without further treatment, and these products together with phenol and some others, were produced exclusively for the United States and the allied powers. While the products of the company were largely raw materials for explosives, many other chemical compounds were manufactured, notably benzol, and dyestuffs, among which may be mentioned H-acid, one of the intermediates formerly controlled by Germany and one by which she dominated the dye industry of the world. The Merrimac Chemical Company was the first American concern to place this material upon the market. For some time it was the only firm able to produce it in sufficient purity to make reliable blue, black and khaki fabrics. It is interesting to note that its development was carried on under the supervision of Arthur L. Gardner, '08, assistant superintendent of the Woburn works, the actual experimentation being conducted by Luther M. Lauer, '17.

The dye industry was itself closely associated with the munitions industry as some of the highest explosives, notably tetra-nitro-aniline, are made directly from the basic materials of the dye industry, while others, such as T. N. T. and T. N. X., have been developed from materials used in the manufacture of dyes. The National Aniline and Chemical Company, Inc., of New York City, was engaged in the manufacture of these products and also undertook the manufacture of mustard gas. A. H. Jacoby, '98, manager of the intermediate department, and William L. Spalding, '05, research engineer, were actively engaged in the work.

Most of the explosives used in the war are oddly enough by-products of industries which, in themselves, can scarcely be considered warlike. Thus toluol, aniline and ammonia are obtained chiefly as by-products from coal distillation. Glycerine is a by-product of slaughter houses and packing operations and cotton linters from the manufacture of cloth. As a result, a number of Tech men held positions in companies which although little allied in a direct sense to the prosecution of the war were nevertheless supplying essential raw materials as by-products. Among these men may be mentioned Stephen P. Brown, '00 (deceased), chief engineer of the construction department of the International Coal Products Corporation of New York, and Morris M. Brandegee, '16, who was assistant to the chief chemist and vice-president of the same organization. Another vice-president of this corporation is Thomas C. Clarke, '93, who during the war, as colonel of the 110th Engineers, of the 35th Division, was leading his regiment in France. The most important piece of work in which his associates at home seem to have been engaged was the design and construction of a plant situated in Virginia for the manufacture of briquettes of a compound known as carbo-coal, together with the by-product plant which yielded toluol and ammonia. Carbo-coal was especially valuable as a war fuel as it burned without smoke. While it was actually designed and constructed by Brown, a large part of the experimental work upon which the design was based was carried on under Brandegee's direction. Brandegee also experimented in cracking various kinds of oil for the production of toluol.

In this connection may also be mentioned Robert V. Zahner, '09, engineer in charge of the building and electrical departments of the Koppers Company of Pittsburgh; Emil F. Vogel, '00, assistant superintendent of the By-Product Coke Plant of the Youngstown Sheet and Tube Company, who was associated with George A. Sweet, '16, foreman of the same by-product plant; and Erik H. Green, '01, treasurer and general manager of the Agawam Chemical Works, Inc., who was engaged in the manufacture of dyes and closely related chemicals.

Associated with Zahner we find Albert E. Smyster, '96, engineer of refractories, and Frank E. Hamilton, '07, operating engineer. These men and their associates designed and erected seventy-six batteries containing 4,252 ovens with a capacity of twenty tons of coal per charge and a coking period of fourteen to eighteen hours. Zahner states that these ovens doubled the by-product capacity of the coking plants of the United States and that the plants built by his department produced no less than seventy-five per cent of the benzol and toluol manufactured in this country.

Arthur B. Allen, '03, assistant superintendent of the New York Mutual Gas Light Company, and Charles A. Raymond, '06, assistant superintendent of the New England

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Fuel and Transportation Company were engaged in the same type of work. Allen was placed in charge of a special toluol plant erected by the Government on his company's property, in which toluol was distilled from the light oils extracted from the gas obtained during the purification of the illuminating gas for New York City.

Toluol was also obtained as a by-product in the preparation of sulphite paper pulp, and E. R. Barker, '98, served on the Toluol Committee of the Technical Association of the Pulp and Paper Industry to investigate the amount which might be obtained from this source.

A number of our men were also engaged in the manufacture of glycerine as a by-product, and among these may be mentioned George M. Greene, '03, an assistant superintendent with Colgate & Company; C. B. Morey, '06, chief chemist of the Larkin Company of Buffalo; and Wilson H. Low, '86, of the Cudahy Packing Company. As the entire product of Colgate factory had been placed at the Government's disposal, Greene, in addition to his work in glycerine, had direct supervision over the production of soaps for the Army, the Navy, and the Marine Corps, and also of the manufacture of "sag paste" which proved more or less successful in protecting our men from the burns of mustard gas. Morey was also engaged in the manufacture of sag, and he mentions soap, "issue," and soap, "hand," the former being the material which is familiar to those who served in the Army under the name "commissary bouquet."

Low, in addition to exercising chemical supervision over the production of glycerine, was responsible for the general composition of the food produced at the packing house and for the inspection of materials to make sure that hostile agents had not introduced poison.

The manufacture of medical supplies was a branch of the chemical industry, as closely related to the battlefield as those dealing with explosives and their raw materials. Several of our men have for some years specialized in this work, and their plants continued during the war to manufacture the much-needed products. Among these may be mentioned Charles C. R. Fish, '74, manufacturing chemist for Otis Clapp and Son., Inc.; Arthur F. Harkness, '02, who worked as chemist for the Lewis Manufacturing Company; and Edward E. Bennett, '07, manager of the National Milk Sugar Company, of New York. The supplies produced under the direction of all these men went directly to the American Red Cross or to the medical services of the United States, France and England.

Another material generally produced by the chemical companies which was absolutely essential for the production of aircraft was cellulose acetate and similar "dopes" used to tighten the wing fabric of airplanes and render it more impervious to air. The chief source of supply of this material appears to have been the Eastman Kodak Company, headed, as we all now know, by the "Mysterious Mr. Smith." "Mr. Smith" is not, in the strictest sense of the word, a Tech man, save by adoption, but among his forces were a great number of Tech men, including James H. Haste, '96, manager of the Kodak Park Works at Rochester; Albert F. Sulzer, '01, general superintendent of film manufacture at that plant; Dalton G. Bent, '05, assistant superintendent, and Henry H. Tozier, '96, superintendent of the photographic paper department. Haste and Sulzer appear to have been most directly engaged in the manufacture of cellulose acetate, regarding which Sulzer says, "The Signal Corps very quickly realized that large quantities of cellulose acetate would be required to be applied as a varnish for wings of airplanes. Some years previous to the war the Eastman Kodak Company had experimented in the manufacture of cellulose acetate for non-inflammable "movie" films, but in 1917 the plant was not in operation. A contract was made with the Signal Corps to produce large quantities of this material. The plant was put in operation, and at later periods the output was doubled several times, the size of the plant being increased to meet the Government's needs. A recovery plant was also erected to salvage the waste acetic acid as sodium acetate. The Eastman Kodak Company was at first the sole manufacturer of this material and was able to produce sufficient quantities to more than fill the shipping orders of the Government. Dope-mixing contracts were also taken for dissolving the cellulose acetate in proper solvents to produce varnish to be spread over the surface of the airplane wing.

Tozier and Bent dealt with the development of photographic paper and other

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materials, but in addition to this considerable work was undertaken along lines not remotely connected with photography. Some of this work which was directly under Tozier's supervision included the development of an anti-dimming coating for gas mask eye-pieces, and in this direction some very excellent results were obtained, though none of these compounds gave entire satisfaction and their need was finally obviated by improvements in the gas mask. Bent attacked the problem from a different angle in an attempt to develop a celluloid eye-piece which would not cloud.

A very different type of chemical products were those manufactured by paint concerns, but in this work also we were well represented by Edward C. Holton, '88, and Sherley P. Newton, '06, the former chief chemist of the Sherwin Williams Company and the latter chief chemist of the Sherwin Williams Company of Canada, Ltd. Under the direction of these two men an immense quantity of paint for all manner of purposes was produced. Because of its value in camouflage, paint played a more conspicuous part in the recent war than has usually been the case. In addition to the paints for camouflage purposes, preservative paints were manufactured for use on submarines, battleships, and railway equipment, and special varnishes were developed for aircraft. Besides looking after the manufacture of paint, especially shell paint and varnish for Canadian munition companies, Newton was charged with the production of insecticides for the protection of the Canadian potato and garden crops. This material was classed by the Canadian government as of equal importance with explosives in the prosecution of the war, and about eighty per cent of it was made under his direction.

Still another and very different branch of chemical work was carried on by William H. Adams, '91, vice-president and general manager of the Eastern Finishing Works, Inc. This company handled the dyeing and waterproofing of heavy fabrics, canvas, and tarpaulins for the Army and Navy. About ninety-five per cent of its production was on government contracts and none of its material was rejected.

Great progress was made in the processes of manufacturing nearly all types of chemicals during the war and many Tech men engaged as consulting engineers and chemists contributed toward this improvement. Prominent among these was Arthur D. Little, '85, president and general manager of Arthur D. Little, Inc., and Hervey J. Skinner, '99, vice-president of the same company. Their laboratories were largely taken up with research work in co-operation with the Gas Defense Service of the later Chemical Warfare Service, and some very excellent results were obtained. Perhaps the most noteworthy improvement which can be attributed to the company was the development of smoke filters of low mechanical resistance which, when used in gas masks, extracted the particles of poisonous smoke clouds without causing undue effort on the part of the wearer. Work was also carried on in conjunction with the Signal Corps for increasing the supply of acetone. The production of this material by direct fermentation was also investigated, and in this work Harry S. Mork, '99, who preceded Skinner as vice-president of the concern, was very actively engaged.

Parker C. Choate, '85, a metallurgical engineer, worked on the development of permanganate of potash and soda and also did very important work upon the metallurgy of lead and zinc, particularly in the production of the latter. Charles L. W. Pettee, '97, an analytical and consulting chemist, was engaged in testing materials for the Government, including brass, bronze and various kinds of steel. The method originated by him in the analysis of platinum alloys was requisitioned and used by the Platinum Control Bureau. Herbert O. Keay, '00, manager of the Laurentide Company, Limited, of the Province of Quebec, did considerable research work in connection with the manufacture of ethyl-alcohol from sulphite waste liquor in pulp mills and also in the recovery of cymene in the manufacture of toluol. It may be mentioned that Keay entered a Canadian officers' training corps but was unable to pass the physical requirements for active service.

The manufacture of hydrocarbons and other organic compounds was essential for the conduct of the war, but their production would have been impossible without the basic chemicals, particularly sulphuric acid, potash, and carbonate of soda. Mention has already been made of the Semet-Solvay Company and of the Hercules Company, which produced these materials in great quantity. It is interesting to note, however, that the

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largest production of potash from any one concern in the United States came from the Potash Reduction Company, of Hoffland, Nebraska, where the material was manufactured under the direction of Charles F. Runey, '07, manager of the plant.

Alkalies were produced by the Mathieson Alkali Works, of Niagara Falls, where Ralph E. Gegenheimer, '10, served as chief chemist. Eighty-five per cent of the product of this plant was for the use of the Government, and it included bleaching powder, liquid chlorine and caustic soda. In addition to these materials, however, the plant was the first to manufacture tetrachlorethane for use as an airplane "dope." This material had previously been imported from Germany. Later on a plant was built which provided for the production of thirty tons per day of sulphur chloride, which was shipped to the Edgewood Arsenal, where it was manufactured into mustard gas (see page 255).

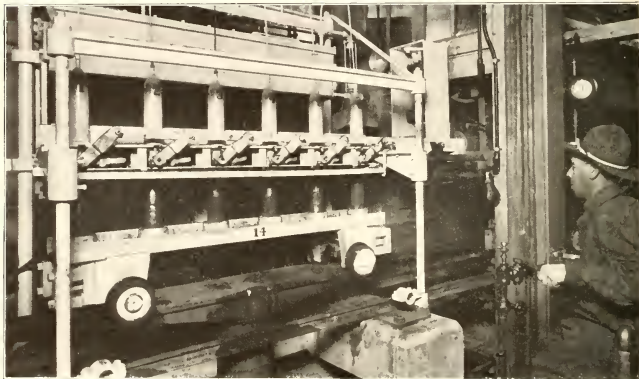
In the manufacture of most of these products electricity plays a very important part, and at least four electro-chemical plants whose operations were more or less directed by Tech men should be mentioned. These are the Shawinigan Water and Power Company, of which William S. Hart, '00, was treasurer and director; Electro Metallurgical Company, the Union Carbide Company and the National Carbon Company of all of which William J. Knapp, '06, was and still is vice-president and general manager. In the Union Carbide Company he was associated with James H. Critchett, '09, and in the National Carbon Company with Oscar S. Pulman, '06. The Shawinigan Water and Power Company during the war manufactured acetone and acetic acid synthetically from acetylene gas, which was produced from calcium carbide made in its plant, this being the first time that this method was ever successful upon a commercial scale in America. The company also produced large quantities of calcium carbide and metallic magnesium, all of which was taken by the British government. Knapp's group of companies was engaged in turning out ferro alloys such as ferro-silicon, ferro-chromium, ferro-zirconium, calcium carbide, and carbon electrodes for electrical furnaces. Another company engaged in electrical-chemical work was the Fort Hill Chemical Company. During the first part of the war Austin T. Hyde, '01, was its superintendent and was engaged in the manufacture of chlorate of potash, an essential constituent in cartridge primers and several types of explosives and hand grenades. Later on, as manager of the Keokuk plant of the River Smelting and Refining Company, he was engaged in the production of electrolytic zinc for cartridge brass.

William M. Perley, '98, and Matthew C. Hayes, '08, were both engaged in the production of sulphuric acid, and in addition Perley, as superintendent of the Avery Chemical Company of Lowell, supplied ammonia and materials for dyeing various fabrics and the regulation khaki. Hayes, as plant manager of the Titanium Pigment Company of Niagara Falls, produced great quantities of sulphuric acid, titanium chloride for use in filling smoke bombs, and various other materials. His production of sulphuric acid alone amounted to more than a million pounds per month.

In addition to those directly engaged in the production of chemicals there were many more who acted as designers or manufacturers of apparatus. Perhaps one of the most interesting pieces of work along this line was performed by O. W. Fick, '14, while serving with the Liquid Carbonic Company of Chicago. In September, 1917, the company was asked to send a representative to Washington to help solve a problem in shell-filling. The problem proved to be that of supplying the Edgewood Arsenal (see page 255) with machinery for filling shells with poisonous gases. Fick's design, after slight alterations, was accepted and twenty-one of the machines were constructed. They were manufactured in two types, a special design for 75 mm. and for 155 mm. shells, but were so built that they could be adjusted for five, six or eight-inch shells. Regarding the machine itself Fick says: "The machine was of a very simple construction and worked on the 'syphon' principle. This was necessary, as the shells had to be filled to a certain height. In order to keep the level constant a solenoid valve and float were used. Due to the nature of the 'fluid' which was put into the shells, only iron, steel and lead could be used, as other metals were attacked. Six shells could be filled at one time, and these were lifted to the filling position by an air-lift cylinder, large enough to accommodate the truck which carried the shells. The shells automatically opened the valves."

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Another organization which supplied a large amount of material was the E. E. Badger & Sons Company of Boston, in which a very considerable number of Tech men worked during the war. These men are Charles E. Greene, '10, factory superintendent; Charles L. Campbell, '09, head of chemical engineering staff; Albert A. Haskell, '02, foreman of the erection shop; James A. Flint, '18, inspector; Carl W. Gram, '09, assistant to the general manager; Charles L. Campbell, '09; Clark S. Robinson, '09; Harry C. Merriam, '06; George P. Lunt, '10; Ralph M. Torrey, '12; H. J. Lucey, '15; all members of the chemical engineering staff. Even before the United States entered the war the firm had been busy with the construction of apparatus for munition and chemical plants erected by the Canadian government and by various manufacturers in the United States, including the E. I. du Pont de Nemours Powder Company, the New England Manufacturing Company, Mackintosh-Hemphill and Company, and the Indiana Gas and Coke



FILLING 75 MM. SHELL WITH MUSTARD GAS — EDGEWOOD ARSENAL

Company. Largely through the activity of Campbell the plant took up the production of apparatus for the American Government or for the various corporations which acted as its agents; among the plants equipped were fixation plant at Muscle Shoals (see page 373), the Old Hickory powder plant at Nashville, Tenn. (see page 361), the plant at Nitro, West Virginia (see page 362), the Cleveland Cliffs Iron Company, at Marquette, Mich., the Mid-Continent Iron Company at Midco, Mo., while later on numerous other installations were made for the E. I. du Pont de Nemours Powder Company, the Merrimac Chemical Company, Canadian Electro Products Company, and the O'Brien Munitions Company, all of which were placing practically their entire output upon war orders.

The chemical staff of the company developed a number of new processes. Merriam, working with the Bureau of Aircraft Production, undertook to increase the yield of acetone from the distillation of wood, and under his direction two large plants with a capacity of two hundred cords per day were constructed. One was actually in operation at the date of the armistice and the other was nearly completed. Alcohol was also recovered in the process. Lunt was apparently engaged in the same work and in the design, erection and

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operation of plants for the manufacture of acetone, acetic acid, methyl acetate, ethyl acetate, amyl acetate, ether, alcohol, benzol-toluol, nitro-toluol compounds, and various other compounds.

The most exciting piece of work came to Greene, Haskell and Flint who were engaged in the manufacture of copper piping. The plant was assigned a contract for furnishing copper engine-room piping for one hundred and eight of the standard ships in the new merchant fleet, the whole to be ready upon a certain date. The time allowed was such that to have produced it by the accepted methods of manufacture would have required a plant of approximately ten times that available, and, more important, would have required ten times the number of skilled workmen; as a matter of fact coppersmiths simply could not be obtained for love nor money. For some time it looked as though the job could not possibly be accomplished, but finally an idea proposed by one of the foremen was developed and a machine for bending the pipe was produced, the first which had ever been successfully operated. This machine in itself gave the requisite increase in production, and the entire contract was completed on time.

The plant employs for the most part very highly-skilled workmen, yet during the war it was necessary to expand an organization of fifty men to one of five hundred. This expansion was, nevertheless, satisfactorily accomplished. It is interesting to note that members of the staff were rated as being engaged in such essential work that none were permitted to change their occupation or enter military service.

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Mention has already been made of a number of Tech men who were prominent in government supply departments dealing with the manufacture and procurement of rubber goods, and it is not surprising to find our men equally prominent among the companies which supplied these materials. Perhaps there was no company in which there was a larger number of Tech men engaged, or which took a more prominent part in the manufacture of rubber goods for war purposes, than the Goodyear Tire and Rubber Company. Practically all of its war work was carried on under the direction of P. W. Litchfield, '06, vice-president and factory manager. There were at least twenty-one other Tech men in the Goodyear organization and many of these held responsible positions.

The Goodyear products consisted of rubber goods which were utilized for balloons, tires and so-called mechanical products for miscellaneous purposes. Perhaps the most unique and interesting work was the production of balloons. Sometime previous to the declaration of war by the United States, the company had foreseen the probability of such an emergency, and upon its own initiative had made extensive preparations. A tract of land was purchased near Akron which was fitted up for use as a flying field for lighter-than-air craft. The new field was cleared and graded, a hangar which was at that time the largest in the country was erected; a hydrogen plant was installed and offices, mess halls and quarters for men were provided so that, should the Government desire, the field could be used at once as a center for organization and training of men in the use of dirigible and other balloons. The field cost in the neighborhood of half a million dollars, and occupied some six hundred and sixty acres of land, situated at the edge of a small body of water which was subsequently given the name Wingfoot Lake.

The balloon production at the factory as well as the work at Wingfoot Lake was under the direction of Don R. Stevens, '11, who, in addition, acted as head of the personnel and labor divisions and assistant to the factory manager. R. A. D. Preston, '10, was placed directly in charge of flying at this field and remained in this position until he accepted a commission in the Flying Corps of the Navy (see page 251). The hydrogen plant was in charge of C. N. Hand, '17.

Even before the declaration of war the Goodyear plant was manufacturing dirigibles and other balloons. The first to make a flight after war was declared was the D-2, a ship of the tractor type with a capacity of 77,000 cubic feet. The D-2 was rapidly followed by others and soon the size of the machines began to increase until finally the D-28 with a capacity of 171,000 cubic feet was in the air and even larger machines were under

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design at the date of the armistice. Altogether during the war Stevens' department built 29 dirigibles varying in size from that of the D-2 to the larger D-28, 686 kite balloons of eight different types, 34 spherical balloons for use in training, together with a great number of gas containers, inflation tubes, target balloons, pilot balloons, parachutes and special orders of accessories and equipment. In addition to this the department turned out the greater part of the balloon fabric used by other factories throughout the United States.

The development of these balloons was not accomplished without considerable difficulty. The first dirigibles were of 2-ply fabric, but long before they were otherwise worn out they became so leaky as to be practically unmanageable. No fabric made in the United States was satisfactory. Accordingly the company undertook extensive research work at home and sent some of its best men abroad to see what could be gained from the experience of our allies. In this investigation Tech men took a prominent part. The chief chemist was C. R. Johnson, '11, who continued in charge until he was commissioned a captain in the Gas Defense Service in January, 1918. He subsequently had charge of the development and procurement of rubber parts for the new gas masks which were being developed, and was later transferred to the Chemical Warfare Service to take charge of the Long Island Laboratories, where he directed the work on the development of chemical absorbents. In July he was commissioned a major, and in October, 1918, he was detailed to attend the interallied gas conference at Paris. In his work at the Goodyear laboratories Johnson was aided by W. G. O'Brien, '12, in charge of the chemical plant of the factory, W. J. Kelley, '09, W. P. Keith, '14, W. H. Price, '14, and B. H. Hale, '14, in charge of the diffusion laboratory. All of these men, with the exception of Keith and Hale, were working on many additional problems. As a result of the investigations, a much better fabric was developed. The first improvement was accomplished by spraying a film of gas-tight material in the form of a solution upon the fabric, which helped to give the dirigible a longer life. Later a new fabric was developed. The dirigible built of the new material, instead of being olive drab in color, shimmers and shines in the sun. Three piles of fabric are used, and the rubber and cotton cloth are protected from the sun and weather by a coating of aluminum. These ships proved to be strong and tight after months of service.

In the matter of tires the company also performed very noteworthy work. It may be recollected that at the outbreak of the war one of the most serious problems facing the Government was that of standardizing the various types of automobile and airplane tires manufactured in the United States. This was accomplished by the Pneumatic Passenger Car Tire Committee of the American Rubber Association, of which P. W. Litchfield, '06, was chairman, working in close co-operation with the Rubber and Tire Committee of the War Industries Board. Much of the detailed work was performed by W. S. Wolfe, '12. In spite of this standardization frequent revisions in specifications continued, apparently due to lack of knowledge on the part of the officials of the necessary requirements for each type of vehicle. The Goodyear Company finally offered the services of J. E. Hale, '08, an engineer in one of its tire departments, to aid the government boards in drawing up really standard and suitable specifications. As a result of Hale's advice, the War Department finally adopted a number of well-selected types of tires and rims, including solid Goodyear tires of several models for trucks and the Goodyear demountable rim. Due to the immense number of motor trucks made necessary by the European campaign and the comparatively small number of passenger vehicles required, the demand for pneumatic tires fell off considerably, although the usual types continued to be shipped to various quartermaster depots, particularly for such cars as the Cadillac, Dodge and Ford. The Ford tires were manufactured at Plant No. 2 under the direction of W. H. Fleming, '16, who served as production engineer in those works.

The demand for solid tires increased steadily, being only 675 tires a day in February, 1917, but having risen to an average of 2,900 a day by August. For several days during August the production attained 3,040 per day.

Another problem was that of developing airplane tires, and this work also required a great deal of experimental investigation. One of the problems presented was that of manufacturing tires to fit foreign planes. In order to do this it was necessary to develop

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metric sizes while the ordinary American sizes, particularly the 26 x 4, were also produced in great quantity.

Most of the technical men of the Goodyear organization were engaged in experimental work to improve the product. The experimental department was in charge of K. B. Kilborn, '11, and his two assistants were J. H. Dunlap, '11, and W. S. Wolfe, '12, who has already been mentioned. Wolfe had charge of all experimental work on tires for every kind of purpose. B. Darrow, '11, was in charge of airplane and passenger tire development. J. E. Hale, '08, was in charge of solid tires, and L. T. Cribben, '17, looked after the development of pneumatic tires for heavy trucks.

Another branch of the Goodyear organization was that dealing with what is termed mechanical goods, which included a considerable number of miscellaneous materials, such as gas mask parts, airplane accessories, rubber soles and heels, shell caps, belts, hose and other materials. H. E. Morse, '15, was in direct charge of the manufacture of mechanical goods. J. H. Dunlap, '11, was responsible for the manufacture, specifications and inspection of tires and also for experimental work on certain mechanical goods. N. E. Kimball, '15, specialized on belts. A great number of different products of all kinds were included in the work handled by these men.

In the matter of gas mask parts the factory organization co-operated with that of the Chemical Warfare Service in producing practical designs, and several were worked out in detail before a satisfactory one was developed. Among airplane accessories, perhaps the most important were gasoline feed lines, bumpers and shock absorbers. The company was especially successful in the manufacture of gasoline feed lines, so much so that they made practically all which were manufactured in the United States, and at the date of the armistice had just produced a still more perfect connection. Rubber soles and heels were also manufactured, and shoes so equipped proved rather superior to those made of leather. A number were purchased by the Navy. In addition to these the mechanical products included such things as belting, gaskets and various odds and ends, all of which were designed and produced under the direction of the Tech men just mentioned in the experimental department.

Although most of our men served in the experimental department, there were a number of others who took up work of a markedly different character. Among these were W. H. Fleming, '16, M. C. Brock, '17, and H. P. Gray, '16. Fleming was production engineer at Plant No. 2, where were made the molded goods and the tires for Ford cars. Brock was charged with co-ordinating production details of balloon manufacturing before D. R. Stevens, '11, took charge, and subsequently did various special work. Brock organized a school for foremen. Gray was sent to France to keep in touch with Goodyear products and report on their performance under working conditions. His headquarters were at Paris, but he inspected material along the entire front during hostilities, and after the armistice remained abroad, being at the present time still in France.

The production of manufactured rubber was, of course, dependent on the supply of crude material, and in this work Tech men again played an important part. L. G. Odell, '12, as manager of the crude rubber division, had charge of the purchase and handling of crude rubber in all markets of the world, including the Goodyear's plantation on the Island of Sumatra. J. B. Ingle, '16, was directly in charge of the plantation.

Another of our men who was engaged in looking after the supply of crude rubber was Vincent Sauchelli, '15. At the outbreak of war he was working as a research chemist in the laboratories of the Société Financière des Caoutchoues at Batu Caves in the Federated Malay States. The work was considered essential and Sauchelli accordingly did not return to the United States, but joined the Malay States Volunteer Rifles, an organization which appears to have been a sort of training corps for reserve officers.

The work of P. W. Litchfield, '96, has been mentioned in connection with the War Service Committee of the Rubber Industry. Another member of this committee was Sheldon P. Thacher, '07, technical assistant to the president, United States Tire Company, New York. Like Litchfield he took a prominent part in the standardization of tires and subsequently did notable work in the development of new types and sizes of airplane tires for the large bombing planes used during the latter part of the war, and

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also in the development of solid tires for use on field howitzers and other motorized artillery.

Arthur T. Hopkins, '97, as manager of the service department of the United States Rubber Company, took a responsible part in the manufacture of kite balloons and rain-coats. The latter proved a serious task as there was a general insufficiency of skilled labor and there was some difficulty in keeping the really skilled men at work. The Goodyear Metallic Rubber Shoe Company of Naugatuck, Conn., was also engaged in the manufacture of rubber clothing and footwear. C. R. Haynes, '04, during the period of hostilities was superintendent of this company's plant. Under his supervision about 1,200 pairs of rubber hip boots were turned out each day for practically a year for use by the American Expeditionary Forces. The factory also made about 100,000 pairs of high rubber gaiters for the Navy, and in addition to this they handled rubber footwear on war contracts for Great Britain, France, Belgium, and Japan.

A number of other Tech men worked on similar problems manufacturing gas mask fabric, submarine battery-deck covers, belting hose and rubber valves. Raleigh B. Adams served as technical superintendent with Stowe & Woodward. Leon D. Healy, '09, was chief chemist and technical supervisor of production for the Federal Rubber Company, developing gas masks, grenade cups and washers, recoil parts for seventy-five millimeter guns and howitzers, and airplane accessories. W. D. Everett, '10, was a chemist for the Hood Rubber Company at Watertown, Massachusetts, and as such had control of the stock used in the manufacture of 6,500 pairs of hip boots per day for use in the Army. To obtain this production considerable additions were made necessary in the plant. These were planned, built and operated under directions of Henry P. Bryan, '87. Bryan was also responsible for the choice of Squantum as the site of the Victory Destroyer Plant. C. H. Dennison, '01, was a chemist with the American Rubber Company, and as such was busy in supervising the manufacture of balloon fabric. At the date of the armistice his plant was turning out observation balloons at the rate of three a week.

ELECTRICAL APPARATUS, COMMUNICATION AND POWER

In the late war electrical devices played a very prominent part. There was perhaps no organization which contributed a larger quantity of electrical apparatus to our government and our allies than the General Electric Company in the service of which are a large group of Tech men. This company, as we all know, provided the electrical driving machinery of our battleships, the turbines and gear drives for many of our merchant vessels including all those built at Hog Island, any amount of auxiliary machinery for warships and merchant vessels, not to mention thousands of motors, dynamos and prime movers furnishing light and power to cantonments, arsenals, port terminals and other projects absolutely indispensable to the prosecution of the war.

Unfortunately most of the men associated with this company have given us but very brief accounts of their work, but one of them, Henry S. Baldwin, '96, engineer of the auto-motive department, mentions among other things produced under his direction, 915 twenty-five kilowatt electrical field lighting sets, 91 sixty-inch searchlights of the newly developed open type for the Army and some 50 searchlight sets for the Navy. These were but a few of the activities of this one man who also investigated or supervised the construction of equipment which included devices for launching torpedoes from airships, portable electric field-kitchens, magnetoes for airships, ship propulsion gearing for 200-foot patrol boats, light weight machine guns, automatic indicators for steering the zig-zag courses for the use of vessels in the submarine zone, and the development of electric drive for the new 240 mm. automobile howitzer.

Unfortunately most of Baldwin's comrades have not been so specific, but it seems highly probable that all of them handled work of quite diverse and essential nature. Among them should be mentioned Albert G. Davis, '93, manager of the patent department during the war, who has since become vice-president of the company, Arthur W. Jones, '88, manager of the Schenectady plant, Walter S. Moody, '87, chief engineer of the transformer department, Arthur C. Savage ('88, School of Mechanic Arts), designing

ELECTRICAL APPARATUS, COMMUNICATION AND POWER

engineer, Lawrence A. Hawkins, '99, member of the research staff, K. A. Pauly, '96, member of the engineering staff, Arthur B. Fuller, '89, draftsman, Pomeroy W. Power, '85, mechanical engineer at Pittsfield, Arthur W. Pierce, '92, of the transformer engineering department, George F. Steele, '85, district manager of the power and mining department at Boston, William F. Dawson, '86, electrical engineer in charge of the turbine department at West Lynn, and George W. Emery, '00, draftsman in charge of the design of centrifugal compressors. The positions held by these men taken in connection with the amount of work which naturally fell to the General Electric Company will in itself give some idea of their activities.

Additional facts are known regarding some of them. Jones appears to have been especially active in raising subscriptions for the various liberty loans. A committee at Schenectady, for the organization of which he appears to have been largely responsible, obtained a total subscription of \$9,335,112. Pauly worked in connection with the Ordnance Department in the development of special machine shop equipment for the American Expeditionary Forces. Dawson states that his work in the turbine department was scarcely as interesting as he expected, since most of the shipping produced was driven by geared turbines instead of the electrically connected machines which had been developed in his department, but he nevertheless had the satisfaction of turning out a number of prime movers for various war industries.

Mention has already been made of the work of Dr. Whitney at Schenectady and Dr. Thomson at Lynn in connection with the submarine detection devices, nitrates and similar problems.

At the works of the Westinghouse Electric and Manufacturing Company, Lewis B. Breed, '96, was engaged in the design of dynamos and motors for field radio sets and in developing wind-driven generators for use on airplanes in connection with wireless telephones and telegraph apparatus. The latter was one of the most difficult problems encountered in connection with radio work, for it was necessary to provide a generator which would develop a constant voltage at speeds averaging all the way from 4,000 to 14,000 revolutions a minute. Nevertheless the problem was solved through the work of Breed and his associates working in other laboratories throughout the United States.

Quite as interesting as the work of designing and manufacturing apparatus was the service performed by our men with the great telephone companies. K. W. Waterson, '98, engineer of traffic, F. L. Rhodes, '92, outside plant development engineer, Thomas Shaw, '05, engineer, charged with the design of loading coils and other material for use on long-distance transmission, and Henry E. Darling, '06, all of the American Telephone & Telegraph Co., are perhaps the most noteworthy. Waterson was delegated to act as a representative for the Bell System in connection with many phases of war work, more especially those dealing with special direct lines and similar conveniences for government departments. This work was much larger than is generally supposed, but some idea of it can be gained if one considers that the management of most of the industries of the United States was concentrated in Washington and was conducted largely by long-distance telephone. Rhodes' particular duty lay in conserving materials and developing substitutes, while Shaw worked on the development of long-distance service and in enforcing a system to insure priority for government calls. The most interesting work by far, however, seems to have fallen to Darling, who was charged with the enlistment and training of the women telephone operators for the American Expeditionary Forces.

In November 1917 General Pershing requested the company to furnish one hundred experienced operators, supervisors and chief operators who could speak French and English fluently, who were willing to go to France to operate the trunk lines in the American Service of Supply. It was this organization which Darling assembled. Many of the volunteers though possessing the necessary qualifications in language had not had sufficient experience as operators and had to be given special training. So far as is known, no other army had such an organization, and Darling may be very justly proud of his pupils. He states that the senior chief operators received the Distinguished Service Medal and that many others were cited. There may be those who will suggest that the extreme attractiveness of the uniform worn by these young ladies and the "exceptional meritorious

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services" performed by them on such occasions as the visit of the Prince of Wales to Coblenz, when they were called upon to furnish dancing partners to the British Royal Party, would have been sufficient in itself to insure the decoration of the whole regiment; but quite apart from these services it should be said that these telephone operators at all times provided an efficient and dependable service such as was certainly never seen in France before.

A number of them received citations and decorations for valor, as in the case of the operator at Souilly who, during the early phase of the Meuse-Argonne, stuck to her post and kept putting the calls through in spite of the fact that the town was under the heaviest type of aerial bombardment, a bomb having wrecked the adjoining building.

Lewis H. Johnson, '09, of the Western Electric Company was also, at least in part, responsible for the efficiency of telephone communication in France. It will be recollected that when the American line of communication was laid out it was immediately found that the French telephone and telegraph systems were hopelessly inadequate and unreliable and that an entirely new system would have to be constructed. Two immense trunk lines were accordingly installed and placed in operation. These lines included central offices with the usual type of switch-boards and repeaters, test boards, multiplex printing telegraph equipment, batteries and battery-charging facilities, and in fact everything commonly used in American installations of the highest grade. For the Zone of Advance magneto telephone switchboards were used and in addition portable five-operator centrals for use at army headquarters were built on motor trucks, thus permitting maximum mobility. Practically all of this material was furnished by the Western Electric Company under supervision of Johnson, who was given special charge of all engineering work involved in the overseas orders for telephone and telegraph equipment. When it is realized that at the date of armistice the Expeditionary Forces had established two hundred and eighty-two exchanges of all sizes from the little monochord in the front lines to the largest type of central exchange, some idea of the magnitude of the task can be imagined.

If production of material for the telephone lines in the Service of Supply is worthy of note, a thousand times more so is the supply of material for the lines within the zone of hostile bombardment. Here men of the field signal battalions laid the wire as rapidly as possible on the ground and kept it repaired. When the army moved forward, however, the signal battalions were needed farther to the front and though they used every effort to salvage wire already laid, the demand for wire came each day more urgently from the firing line. The manufacture of this material was handled by many concerns, among them the Standard Underground Cable Company for which Robert E. Doane, '09, was a sales engineer. At the date of armistice his company, with others, was just about to start to manufacture an order for approximately 25,000 miles of twisted pair outpost wire. The quantity which is enough to reach to the moon required sufficient drawn wire to have reached some three and one half million miles.

It may be interesting to note that this wire had to be insulated with braided fabric, much of which was produced by a machine manufactured by the Wardwell Braiding Machine Company, of which Edwin E. Smith, '91, was treasurer. Smith also served as treasurer of another company manufacturing shop equipment for the Government and various essential industries.

J. W. Cooke, '95, performed work of a unique character in connection with the improvement of a storage battery used in submarine boats. During the war he was the storage battery engineer for the Electric Boat Company of Groton, Connecticut, who were and are the largest manufacturers of submarines in the world. The batteries in the larger boats run as high as two hundred horsepower and the radius of action of the boat while under water is dependent upon their efficiency. Under Cooke's direction changes and improvements were made in the construction of these batteries, one of the most radical being that of assembling the cells at the factory of the storage battery makers, instead of at the shipyards as had formerly been the practice. This change brought up some interesting transportation problems since the cells weigh as much as twenty-five hundred pounds each and are easily injured by shock. Batteries developed under Cooke's direction were installed upon the first fleet submarine, the AA-1, and later another battery on board the

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E-2 made the American record for length of them submerged while in the European War Zone.

Another rather interesting phase of electrical work was the development of the vacuum jars for the "audion" and similar tubes by which the wireless telephone was made possible and which played such a prominent part in wireless telegraphy and in the earth telegraphy sets by which it was possible for troops at the front to overhear the telephone conversations carried on by the enemy. These bulbs were largely produced by the Bartlett Vacuum Jar Company of which Frederick W. Bartlett, '96, is president and treasurer. The company gave up its entire domestic trade in order to handle government orders. The manufacture of bulbs for radio amplifiers presents difficulties, since great thermal insulation and strength of the container are necessary factors. The product perfected by Bartlett was the only one developed in the United States which combined these factors.

Perhaps before leaving electrical work, some mention should be made of many men engaged in the supply of electrical power. This work at first sight appears somewhat remote from the front line, yet without it many essential industries would have been obliged to suspend operations. Some mention has already been made of hydro-electric work closely associated with the manufacture of nitrates and other war chemicals. W. Edgar Reed, '97, was engaged as a consulting engineer in charge of the purchase, inspection, and approval of apparatus for three French concerns: he specified the entire electrical equipment used in at least one French steel mill. Josiah C. Monroe, '92, was also engaged supplying power as assistant superintendent of the Edison Electric Company of Boston which furnished electricity for the Watertown Arsenal, the Destroyer Plant at Squantum, Charlestown Navy Yard, and many other government works. There were hundreds of others who found their service in this work and it is only to be regretted that space does not permit a fuller record of their stories.

MANUFACTURE OF MACHINERY

War is fought with other weapons beside shell and poison gas. It has been said that the recent war was fought chiefly with pick and shovel. It might be said that it was fought to a considerable extent with steam shovels and locomotive cranes. Indeed it is somewhat difficult to say whether certain types of material should be considered as military equipment or as machines for peaceful industry. The tremendous works at the various army bases in France could not possibly have been carried through except by the use of immense numbers of steam shovels. Many of these were produced by The Thew Automatic Shovel Company of Ohio, the president of which is F. A. Smythe, '89. It will be recollected that Smythe was a prominent member of the Technology Clubs Associated, and later of the M. I. T. Committee for National Service (see page 64). During the war his plant placed about seventy per cent of its total output upon war work and supplied the United States Government with some eighty machines for excavating—the contract amounting to about \$700,000. These machines included four general types, notably steam shovels, steam cranes, gasoline shovels and gasoline cranes. The whole of this material was accepted without the slightest change in design.

When Samuel M. Felton, '73, was organizing the railway regiments for France (see page 213), he also took measures to procure some eight hundred and ninety-nine locomotive and other cranes. Quite early in the campaign, at Felton's request, the most experienced crane engineer of the Brown Hoisting Machinery Company, of which Carroll W. Brown, '99, is assistant to the president, was sent abroad to determine the proper types of cranes to be installed at the ports of debarkation. Upon his recommendations some sixty large gantry cranes were purchased by the Government, the order being divided among a number of small concerns. All of them were built upon the famous Brown-hoist pattern. A little later the president of the company was called to Washington to take charge of the crane section of the War Industries Board, but nevertheless the organization continued to increase its output until it was fifty per cent greater than it had been previous to the war.

Mention has already been made of the mobile laboratories and water purification

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WATER PURIFICATION LABORATORY. DESIGNED BY WILLIAM J. ORCHARD, '11

apparatus designed by William J. Orchard, '10. These units, of which several hundred were constructed, comprised a complete pumping station filter plant, chlorinating works and testing laboratory. Colonel F. F. Longley, '05 (see page 218) is authority for the statement that without these units the St. Mihiel operation would have been impossible.

Another of our men, John M. Perkins, '01, at that time works manager of the Gilbert and Barker Manufacturing Company, Springfield, Mass., was also engaged in building machines which might not at first appear of a very warlike nature, but which were nevertheless necessary for the conduct of the campaign abroad. These were five-gallon gasoline pumps, which constituted the standard equipment of the American Expeditionary Forces. The factory also furnished oil and gas furnaces for use in the Base Supply Ordnance Depot in France, built as we have already seen by Stone and Webster (see page 378), and in addition did a considerable amount of work in constructing trailers for anti-aircraft batteries.

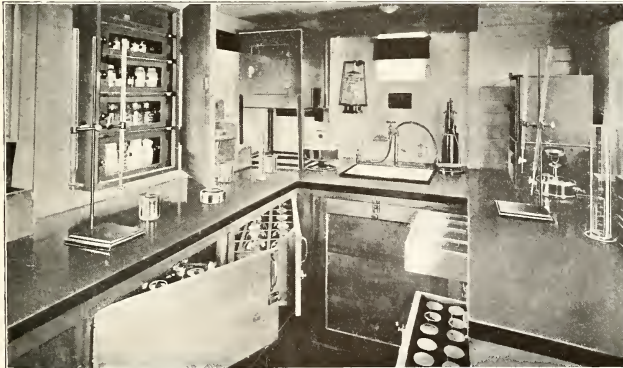
The provision of auxiliary machinery for ships, particularly for war vessels, was of course a very direct phase of war work. Among those producing material for war vessels may be mentioned G. S. Melcher, '79, mechanical engineer and works manager of the Mason Regulator Company, D. L. K. Hathaway, '86, draftsman with the Warren Steam Pump Company, A. C. Ashton, '89, treasurer and general manager of The Ashton Valve Company, and Frederick Metcalf, '90. Hathaway was engaged in the design of pumps for battleships and torpedo boat destroyers. Melcher designed and furnished reducing valves and pump regulators for the Navy Department. Among other things he designed the pump pressure governors for the fuel oil supply of the battleship *New Mexico* and also for the *Eagle* Boats as built by the Ford Automobile Company. Reducing valves were supplied to the Navy by thousands for all kinds of purposes. In one case the specifications called for a reduction from three thousand pounds to four pounds. Ashton, as one might expect, was engaged in the production of valves, and more especially safety valves and pressure gauges for war and merchant vessels, locomotives and power plants.

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Metcalf, '90, also designed automatic valves and among others he originated that used by the British Navy for the control of the trawling winches used by their mine sweepers. Later on he built tremendous quantities of windlasses and other deck machinery both for merchant and naval vessels.

Among those who were engaged in fitting out merchant ships are Henry P. Merriam, '86, R. D. Reynolds, '94, B. H. Johnson, '98, A. K. Isham, '01, and H. L. Dean, '05. Merriam, who is superintendent of the Continental Iron Works, was engaged in turning out corrugated fire boxes for Scotch boilers, steam drums for water tube boilers and digesters used in chemical and munition plants. It may be of interest to note that this was not the first "war service" of the plant for it was at these works that the famous Monitor was launched in 1862. Basford as president of the Locomotive Feed Water Heater Company supplied feed water heaters, evaporators, boiler feed pumps and distillers for ships of the Emergency Fleet Corporation. In all, auxiliaries were supplied for no less than 550 ships. Reynolds was connected with the sales order department of the B. F. Sturtevant Company, and helped furnish blowers and similar apparatus for destroyers, submarines, merchant vessels, and for drying apparatus for factories doing war work, such as ammunition factories, chemical plants, and arsenals. Johnson, as general superintendent of the Cresson-Morris Company, Philadelphia, built such ship auxiliaries as steering engines, towing engines and propellers. Isham as manager of the West Coast Iron Works, produced such ship fittings as hawser pipes, mooring rings, and other castings for eleven different shipbuilding companies on the Pacific Coast. Dean, as manager of the compressor and engine division of the Chicago Pneumatic Tool Company, Chicago, Illinois, furnished any amount of pneumatic tools for ship building and similar work.

Other men dealing with the manufacture of ship machinery were Richard Wastcoat, '00, and N. L. Snow, '04. Wastcoat as president, treasurer and general manager of the Paragon Gear Works equipped all the gasoline motor launches built for the Navy Department since the year 1912, with transmission (or reversing gears). He also installed similar gears on many of the patrol boats which were later taken over from private owners, and supplied gearing for those submarine chasers which were built for foreign governments and equipped with Dusenbergl or Van Clerck motors. He designed and built in a space of



INTERIOR OF ORCHARD'S WATER PURIFICATION LABORATORY

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forty-five days the transmissions used for the Murray and Tregurtha motors used in seasleds for the Navy. Snow, who was connected with The Terry Steam Turbine Company, manufactured turbines for every United States torpedo boat destroyer and Ford Eagle Boat, turned out during the war.

Mention has been made in previous chapters of the tremendous amount of ordnance material manufactured in the United States, and it is at once evident that the manufacture of guns, shells and other materials required an immense amount of special machinery. Institute men were also engaged in this work. Among these men may be noted, W. M. Taylor, '86, president of the Chandler & Taylor Company, James Clark, Jr., '90, J. P. Ilsley, '97, general manager of the Becker Milling Machine Company, Henry E. Warren, '94, G. E. Holmes, '98, chief engineer of the Kidder Press Company, Gerald Frink, '00, president and manager of the Washington Iron Works, R. M. Derby, '01, in charge of the foreign department of the Niles-Bement-Pond Company, and W. C. Tandy, '99, assistant foreman in the shops of L. S. Starrett Company. Taylor, Ilsley and Derby were engaged chiefly in the manufacture of heavy gun lathes, the fabrication of ship plates, and the production of iron castings. Ilsley mentions among other jobs which passed through his office the manufacture of lathes for boring 16-inch guns at the Watervliet Arsenal, and the layout of equipment for shell plants handling shell forgings up to 12 inches in diameter. He later manufactured equipment for use in pistol plants and in works engaged in the manufacture of automobile parts, airplanes and engines. Warren served as president of the Warren Clock Company and at the same time did work as a consulting engineer for the General Electric Company and the Lombard Governor Company. While with the Lombard Company he designed hydraulic lathes for the manufacture of shell and a special hydraulic feed mechanism for use in boring destroyer engine cylinders. He also improved and assisted in testing the firing of mechanisms for heavy guns; he designed special valves for use in some of the nitrate plants and also a hydraulic shell-forging machine. Frink, Holmes and Clark appear to have worked chiefly on special machinery. Frink developed much of that used by the Spruce Production Division for logging purposes, and in addition manufactured hoisting machinery and steel castings of all descriptions. The Kidder Press Company where Holmes was engaged manufactured hydraulic and other presses, particularly those for handling tin foil, and cutting and creasing presses for making cartridge boxes and cartons, the latter being used for shipping food. It also developed a wire loom for making material for gas masks. Holmes states that he believes his greatest service was rendered in converting the factory into a repair shop for the various textile mills and shipyards in the vicinity. Clark made various special tools, particularly electrically driven sensitive drills, of which a great number were furnished both to the Army and the Navy. The work of Tandy is perhaps of special interest as it represents the extremely basic industries which were at first apparently little related to war. He was in charge of the production of measuring instruments and gauges. Without these tools the entire program of quantity production throughout the United States would have been impossible.

MANUFACTURE OF INSTRUMENTS

Quite as essential as airplanes or shell to the conduct of a campaign are instruments, particularly those by which artillery fire can be directed and the explosion of shell regulated. Many Tech men were engaged in the development and manufacture of such devices at various laboratories and plants and some did brilliant work.

Perhaps none made a more enviable record than those in the organization of the Bausch & Lomb Optical Company. Among these may be mentioned Adolph Lomb, '93, a member of the firm, a director and member of the executive committee, and assistant secretary of the company, F. B. Saegmüller, '04, superintendent of the precision optical division, and M. H. Eisenhart, '07, production manager.

It will be recollected that it was this organization which first put the production of optical glasses in the United States on a commercial basis (see page 347). The plant was also the chief source of optical fire control instruments for the Army and Navy.

MANUFACTURE OF INSTRUMENTS

Many other firms previously engaged in the manufacture of precision instruments took up the work, but it was found that those with the longest experience, notably the Bausch & Lomb Company, were generally the first to overcome difficulties involved and place the various articles on a basis of quantity production. The Government placed with this company an order for 4,450 pounds of optical glass. All of it was delivered before November 11. The company's only rival, which was given an order of almost equal size, had produced only a little over five hundred pounds by February of the next year. Bausch & Lomb were also given orders for some 5,470 range-finders with an eighty-centimeter base line, and 7000 range-finders with a one-meter base line. Of the former, at the date of armistice they had already delivered 2,100 instruments as compared with their nearest competitor, who had delivered none; while of the one-meter type something over 1,500 had been produced. The company was assigned the entire contract for sixty-five range-finders with a fifteen-foot base. Of these at the date of the armistice fifty-five had already been produced. Another company which was assigned the production of a nine-foot instrument, had not, at the date of armistice, succeeded in producing a single one. The same record is repeated again and again.

The company undertook to build something over six thousand battery commanders' telescopes. Three other organizations worked upon the same problem. At the date of the armistice the Bausch & Lomb Company had produced 2,820. Its nearest competitor, the Frankford Arsenal, had produced fifty-two and neither of the other plants had produced any. The comparison in the case of the Frankford Arsenal is perhaps not quite fair, since the total contract assigned to it had been for only fifty-two of the instruments. Mere numbers, however, do not tell the entire story of the work performed by the Bausch & Lomb organization. Many types of instruments were manufactured, but it will be noted that those assigned to Bausch & Lomb were range-finders and battery commanders' telescopes. In other words, the two mechanisms upon which the entire accuracy of our artillery fire depended were given to this company for manufacture, and the precision required in the manufacture of these instruments, particularly the range-finder is almost uncanny. In addition to the production of fire control instruments the company was engaged in the manufacture of other essential articles, among which Lomb mentions submarine periscopes, prism binoculars, photo camera lenses for aviation, microscopes for the Medical Department, searchlight mirrors of every description up to sixty inches diameter, and many other interesting products. At the date of armistice the company was employing no fewer than six thousand men and women, many of whom had to be given special training after the outbreak of war.

Saegmüller, as superintendent of the precision optical division, had direct charge of the manufacture of nearly all of the instruments just mentioned, including range-finders, battery commanders' telescopes and periscopes. Eisenhart worked upon the production of the same materials, and we may consider it largely due to him that such an excellent rate of production was obtained.

Another of our men, R. B. Gregson, '06, was serving as assistant superintendent of the Spencer Lens Company of Buffalo. His company was assigned much the same problems as those given Bausch & Lomb. Under his direction there was produced before the date of armistice some 717 aiming circles for use with field artillery.

Another of the companies engaged in the manufacture of instruments, and one which has already been mentioned was the Eastman Kodak Company at Rochester (see page 395). In addition to the chemical investigations performed there, and the development of airplane wing dopes, the factory produced large quantities of cameras and camera lenses, particularly for use in airplanes. The development of a really high-class airplane camera is no easy task, for many very difficult problems are involved. Most of the research involved in perfecting the camera finally adopted was performed at Langley Field or in the laboratories of the Eastman Company. In addition to these the company was assigned work in connection with the production of rifle and gun sights, but it does not appear that most of these had reached the production stage at the date of armistice. Among the Tech men engaged in this plant should be mentioned Virgil M. Palmer, '03, engineer of industrial economy and F. L. Higgins, '04, general superintendent of the

TECHNOLOGY'S WAR RECORD

Hawk-Eye Works. Higgins had previously served as manager of the General Optical Company where instruments were under manufacture for the Medical Department.

Instrument makers also did excellent work in the development of mechanical timing devices for shell. For many years the Germans had manufactured a clock-work fuse which had become the envy of the world for its dependability and precision. At the outbreak of war the United States had no such mechanism, but with the co-operation of scientists and manufacturers such a device was perfected and the American product proved even superior to that manufactured by the enemy. Considerable assistance was given in perfecting this fuse by H. E. Hildreth, '01, who as a director of the Waltham Watch Company closely followed and assisted the development of this device. Israel Hatch, '97, assistant superintendent of the Elgin Watch Company appears to have also worked on the fuse problem. It may also be interesting to know that many of the wrist watches supplied by the Signal Corps were manufactured under his direction.

Both Hildreth and Hatch produced instruments for airplanes, but it would appear that the most successful work along this line was performed by A. A. Packard, '98, works manager of the Taylor Instrument Company of Buffalo. This company supplied the altimeters which were used on every airplane made in the United States. Altogether forty thousand of these instruments were supplied, for the Taylor Company proved to be the only American firm which could meet the government requirements for accuracy and reliability. Under Packard's direction they also made upwards of a million compasses for use by the Army and Marine Corps.

As merchant vessels were a necessary auxiliary to the Army and Navy, so nautical instruments were a necessary type of instrument for warfare. A. E. Ritchie, '02, a member of the firm of E. S. Ritchie & Sons, Brookline, Massachusetts, was engaged in the manufacture of binnacles, compasses, and nautical instruments of all kinds. Ninety-eight per cent of the factory output during the war went over to the United States Navy Department of the Shipping Board. H. A. Buff, '05, of the Buff & Buff Manufacturing Company, also states that he was able to give information relative to the production of sextants which enabled the output to be very greatly increased. W. C. Bond, '80, supplied chronometers and other fine instruments, and also repaired them. He handled a number of contracts for the Navy, War Department, Emergency Fleet Corporation, and in many cases filled these contracts below cost.

MINING

The basic materials of which all munitions and supplies were manufactured came in the last analysis from the farm and the mine. Comparatively few of our men appear to have been actively engaged in the production of food supplies but large numbers were engaged in mining. Perhaps the most basic mining industries were those dealing with coal and iron, particularly the former, without which nothing whatever could have been done. Scarcely less necessary, however, were the other metals and minerals, such as copper, zinc, lead, aluminum, nickel, chromium, manganese, and the hundreds of other materials necessary to produce alloys of the type necessary for guns and high-speed engines, abrasives, refractory materials, and chemicals.

Coal-mining was perhaps the most basic of all industries. Many Tech men were engaged in it in various capacities, but perhaps among the most notable may be mentioned Milton M. Wheeler, '94, general manager of the Kentucky Midland Railroad Company; Robert W. Carr, '95, president of the Carr Coal Company and the Rockdale Consolidated Coal Company and vice-president and manager of the Colorado Mining Company; Fred A. Crossman, '89, who, in addition to doing considerable lumbering work in Canada, was part owner and officer of a number of companies in southeastern Kentucky. Complete figures as to the amount of material produced by these men are not available. Wheeler's mine during the war produced annually 130,000 tons of good bituminous coal, while the companies handled by Carr more than doubled their previous output of lignite. All of these men performed voluntary work of various kinds. Crossman had charge of the various speakers from abroad who visited the mining and "Blue-Grass" sections of Kentucky.

It will be recollected that the products of the coal industries were distributed by

MINING

a special government administrative committee. The allotment of pig iron was handled by committees of the American Iron and Steel Institute. Allan H. Woodward, '00, in addition to his duties as chairman of the board of directors of the Woodward Iron Company, served as a member of the special committee on pig iron, iron ore and lake transportation, having charge of the pig iron produced in the States of Alabama, Tennessee, Georgia, Kentucky and Missouri. Very similar work was handled by John O. Henshaw, '78, in behalf of the Merchant Pig Iron Distributors' Association. The experiences of Samuel H. Brockunier, '93, who was in charge of the mines of the Chateaugay Ore and Iron Company of Lyon Mountain, N. Y., have already been mentioned (see page 352).

While coal and iron were the basic materials from which most of the munitions were made, copper also served as raw material for many indispensable articles, such as rotating bands for shells, electric wires, ship piping and cartridge brass. A very large number of Tech men were engaged in copper mining, so many in fact that it is possible to mention only a very few. Some of the information furnished by one of them, however, may give some idea of what the men in the copper industry did during the war. One of our men who was active at the mines was Edmund A. Thornton, '07, assistant superintendent of the Ray Consolidated Copper Company, of Ray, Arizona, who with his associates succeeded in producing from that single mine an average of 7,500,000 pounds of copper each month throughout the period of the war.

Work of a similar nature was carried on by Frederick C. Jaccard, '07, mechanical superintendent, Earl S. Bardwell, '06, superintendent of the ferro-alloy department, and C. W. Goodale, '75, all of the Anaconda Copper Mining Company; Edwin K. Chase, '06, assistant superintendent of the Durango (Colorado) Smelter of the American Smelting and Refining Company; and Frank D. Rathbun, '03, superintendent of the Metcalf (Arizona) Division of the Arizona Copper Company. The work of Jaccard and Bardwell differed slightly from that of the others in that they produced manganese and zinc as well as copper. Practically all of these men worked in that district of the United States where the I. W. W.'s were most dangerous and active throughout the war, and they were hard put to it at times to get out the immense production demanded. Some of them were drafted but were instructed to ask for deferred classification, inasmuch as their services were absolutely indispensable to the Nation in the positions which they occupied. Goodale was appointed a special inspector for the Bureau of Mines, his duty being to examine mines to insure that dynamite did not find its way into the hands of hostile agents.

Thomas M. Hamilton, '03, and Louis K. Rourke, '95, were engaged in work in South America. Hamilton volunteered for military service but was requested to continue his exploration work in the Andes. Rourke remained at Chuquicamata, Chile, throughout the war, endeavoring to increase the capacity of the mine to 15,000 tons of electrolytic copper per day.

One of the most interesting records is that of Ramon F. Muñoz, '09, superintendent of *Compañía de Minerales y Metales*, of Monterey, Mexico. It has frequently been said that Mexico was hostile to the United States and that everything possible was done to shut off our supply of materials for munitions, but there certainly appears to have been no such feeling on the part of Muñoz or his associates, for he states that his work throughout the war consisted in "opening up and preparing the mines for the production of the largest tonnage of zinc and lead ores, in the northern mines of Mexico, for shipment to the United States." He adds that the object of the work was accomplished with more than the expected results.

Zinc was as necessary as copper in the production of cartridge brass and it also found other uses. Most of our men engaged in the production of this metal were also engaged in the production of lead, and the allocation of these metals was handled in much the same manner as that of pig iron. A committee on lead had been appointed as part of the Council of National Defense to care for the lead production and distribution. Owing to the passage of the Food and Fuel Control Bill, by which it was made illegal for persons to act as advisers for the Government regarding industries in which they were financially interested, this committee passed out of existence, but it was still found necessary to arrange a method for handling the Government's tremendous requirements. The method

TECHNOLOGY'S WAR RECORD

adopted was the formation of a special committee of the lead producers themselves, who undertook to reserve the necessary amount of lead for the Government's uses at certain definite prices. All lead producers were requested to co-operate, but when they failed to do so, the committee, made up of representatives of some of the largest firms, themselves supplied the material at the price agreed upon, very often at a considerable loss. The committee, was composed of nine representatives of the lead industry, the secretary being Arthur K. Mitchell, '09

Among those who aided by producing the material were George Faunce, '82, president of the Pennsylvania Smelting Company, Eugene H. Laws, '96, superintendent of the Ohio and Colorado Smelting and Refining Company, James H. Batcheller, '00, manager of the Virginia Lead and Zinc Corporation, and Henry A. Wentworth, '05, vice-president of the American Lead, Zinc and Smelting Company, of Boston. Wentworth reports that his company produced 30,000,000 of zinc for cartridge brass and 30,000,000 pounds for other purposes, 20,000,000 pounds of lead and 90,000,000 tons of sulphuric acid.

Aluminium was another vital necessity and its ores were mined not only to obtain the metal but also for the manufacture of other materials, notably ferro-alloys and abrasives. Otis Hutchins, '11, worked as metallurgical engineer for the Carborundum Company, of Niagara Falls, N. Y., and had charge of the electric furnace production of that company's abrasives and also supplied metal from which hydrogen was manufactured for American balloons. Thomas C. Fisher, '12, of the Norton Grinding Company, of Worcester, Mass., also performed unusual work in connection with aluminium. His regular position is that of engineer in the research laboratories of that company but during the war he was sent, with a party of five others, to South America to search for bauxite deposits, the ore from which the Norton Company's product is obtained. He penetrated the wildest and least explored portion of the continent, notably Dutch and French Guiana. The expedition was quite successful in the discovery of large bauxite deposits.

In connection with the War Minerals Board mention has been made of the work of our men who searched for materials utilized in the production of steel alloys and a number of our men engaged in mining work also investigated this problem. One of the most successful was Carl J. Trauerman, '07, who was in charge of the Ophir Mine and Mill of the Butte Central Mining and Milling Company. This company was among the pioneers in mining pink manganese ores in Butte, Montana. These deposits are of immense magnitude but of exceedingly low grade and have never been able to compete commercially with the black oxide deposits. The tremendous demand for manganese, however, was rapidly exhausting the latter type of deposit, and had the war continued a short time longer the country would have been entirely dependent upon the pink deposits which were developed under Trauerman's direction. His company was also successful in handling the poorer qualities of the black oxide.

Dennis F. Haley, '01, during the early part of the war was associated with the Ohio and Colorado Smelting Company, and his work was of a somewhat different nature as he was undertaking the construction of a plant for the recovery of molybdenum. The work seems to have progressed very satisfactorily, for within a year a thousand-ton plant had been developed.

Ernest E. Mead, '96, as chief engineer of the Noble Electric Steel Company of California, also produced considerable quantities of ferro-manganese, ferro silicon, and mined ores of iron manganese and chromium.

The various furnaces and smelting plants had to be kept in repair and this was in itself no small matter. A certain group of these furnaces in the neighborhood of Lebanon, Pennsylvania, are said to have produced sixty per cent of the ferro-manganese supply of the United States. This group of plants was kept in repair by the Weimer Machine Works of Lebanon, directed by Edgar A. Weimer, '98.

OTHER INDUSTRIES

The various departments of industry which have been mentioned represent but a few of the millions of activities which contributed for the supply and upkeep of the Army and Navy. Tech men were engaged in other occupations equally essential.

OTHER INDUSTRIES

An industry perhaps concerning which the public knows little was that dealing with the manufacture of the jute goods; yet this was work of a most essential nature. J. W. Campbell, '17, commercial assistant of the Angus Company, Ltd., of Calcutta, India, reports that seventy-five jute mills, all of which were located along the Hooghly River, produced 1,378,000,000 sand bags for trenches of which approximately 100,000,000 were also used as wheat bags for shipment of crops from Argentine and the United States to Europe. In addition to this the mills furnished 713,000,000 yards of burlap suitable for camouflage and about 1,000,000,000 pounds of twine. The mills in every case were very shorthanded but the work was carried on in so successful a manner that the British Government did not find it necessary to assume the control.

Another of our men in the same company was Percy McCullough, '14, who was



ARMISTICE DAY CELEBRATION AT CORFU

in charge of the construction of extra buildings and installation of machinery in one of the factories mentioned above.

Another industry which might not at first appear to have been essential to the war is that dealing with the manufacture of serums and antitoxins. Yet these plants operated to capacity to fill the government orders for prophylactics, antitoxins, and vaccines. Peter Masucci, '15, who worked for the Mulford Company at Glenolden, Pennsylvania, states that at one time the company had under treatment no fewer than eight hundred horses which were supplying anti-pneumococcus serum, besides several hundred others from which were obtained antitoxins for tetanus and diphtheria.

A. E. Wadsworth, '93, also gave aid in protecting the health of our troops. Wadsworth, who was a member of the staff of the New York State Department of Health, and his associates trained technicians for military laboratories and supplied both the Army and Navy with serums for use in the diagnosis and treatment of pneumonia; epidemic meningitis and dysentery. They also operated a laboratory service for the diagnosis of infectious diseases at army posts and cantonments throughout the state and at the embarkation camps of New Jersey.

CHAPTER XI

REGISTER OF MILITARY RECORDS

The records here included are those of men who were in the military service of the United States or the Allies, or were members of the militarized branches of the various relief societies engaged with the combatant forces. In the case of the latter it is possible that some have been included who were not in the military branches, as it has been assumed by the Editor that members of these organizations who were serving abroad were without exception given rank and uniform, and placed upon a military status.

LIST OF ABBREVIATIONS

(A.), Aviation (Navy); A.-A., Anti-Aircraft; A. C. of S., Assistant Chief of Staff; A. D. C., Aide de Camp, Adj., Adjutant; Adj. Gen. Dept., Adjutant General's Department; Adm., Administration-Administrative-Administrator; A. E. F., American Expeditionary Forces; Amb., Ambulance; Amb. Sect., Ambulance Section; Amer., American; Am. Tr., Ammunition Train; Appr., Apprentice; Arty., Artillery; Arty. (Hv.), Heavy Artillery; A. S., Air Service; A. S. A., Air Service, Military Aeronautics; A. S. C., Army Service Corps; Assoc., Associate; A. S. P., Air Service, Aircraft Production; A. S. R. C., Air Service Reserve Corps; A. S., S. O. S., Advance Section, Service of Supply; Assn., Association; Asst., Assistant; A. T. S., Army Transport Service; Australian E. F., Australian Expeditionary Force. B. E. F., British Expeditionary Force; Bd., Board; B. M. 1cl., Boatswain's Mate, first class (Navy); B. M. 2cl., Boatswain's Mate, second class (Navy); Bn., Battalion; Bn. Sgt. Maj., Battalion Sergeant Major; Br., Breguet, a bombardment and reconnaissance plane of French design; Brig., Brigade; Brig. Adj., Brigade Adjutant; Brig. Gen., Brigadier General; Btry., Battery; Bu., Bureau. C., Corps; C. A. C., Coast Artillery Corps; C. A. R. C., Coast Artillery Reserve Corps; C. A. Tr. Sch., Coast Artillery Training School; Capt., Captain; Cav., Cavalry; C. B. M., Chief Boatswain's Mate (Navy); C. C., Construction Corps (Navy); C. C. M., Chief Carpenter's Mate (Navy); C. C. S., Casualty Clearing Services (Canadian); C. E., Chief Electrician (Navy); C. E. C., Civil Engineer Corps (Navy); C. E. F., Canadian Expeditionary Force; Cent. Off. Tr. Sch., Central Officers' Training School; G. G. M., Chief Gunner's Mate (Navy); G. I. P., Corps of Intelligence Police; G. M. 1cl., Carpenter's Mate, first class (Navy); G. M. 2cl., Carpenter's Mate, second class (Navy); G. M. 3cl., Carpenter's Mate, third class (Navy); Co., Company; C. O., Commanding Officer; Co. Comdr., Company Commander; Col., Colonel; Comdr., Commander; Comm., Committee-Commission; Cons., Construction; Cons. Co., Construction Company; Cons. Sq., Construction Squadron; Cons. Q. M., Constructing Quartermaster; Corp., Corporal; C. P. O., Chief Petty Officer (Navy); C. Q. M., Chief Quartermaster; C. W. S., Chemical Warfare Service; C. Y., Chief Yeoman (Navy); C. Y. (F.), Chief Yeoman (female), (Navy). (D), Deck Duties (Navy); Dept., Department; Det., Detachment; Disch., Discharged; Dist., District; Div., Division. (E.), Engineering Duties (Navy); E., 1cl., Electrician, first class (Navy); E., 2cl., Electrician, second class (Navy); E., 3cl., Electrician, third class (Navy); Elec., Electrician; Engr., Engineer; Engr., Engineers; Engr. R. C., Engineer Reserve Corps; E. R. C., Enlisted Reserve Corps; Ensign (E.), Ensign Engineering Duties (Navy); Ensign (D.), Ensign, Deck Duties (Navy); Ex., Executive. F. A., Field Artillery; F. A. (Hv.), Heavy Field Artillery; F. A. R. C., Field Artillery Reserve Corps; Field Sig. Bn., Field Signal Battalion; 1st Lt., First Lieutenant; 1st Sgt., First Sergeant; Ft., Fort. G-1., Administrative Section of Staff; G-2., Intelligence Section of Staff; G-3., Operations Section of Staff; G-4., Construction, Transportation and Medical Section of Staff; G-5., Training Section of Staff; G. B., Bombardment Gun (French Air Service); G. H. O., General Headquarters; G. M. 1cl., Gunner's Mate, first class (Navy); G. M. 2cl., Gunner's Mate, second class (Navy); G. M. 3cl., Gunner's Mate, third class (Navy); Gunner (E.), Gunner, Engineering Duties. Hon. Disch., Honorably Discharged; Hosp., Hospital; Hosp. Appr., Hospital Apprentice; Hosp. Sgt., Hospital Sergeant; Hq. Co., Headquarters Company; Hv. Arty., Heavy Artillery; H. E., High Explosive; Hq. F. A., Heavy Field Artillery. Inf., Infantry; Inf. R. C., Infantry Reserve Corps; Inst., Instructor. Jr., Junior. Lds., Landsman (Navy); Lt., Lieutenant; 1st Lt., First Lieutenant; 2d Lt., Second Lieutenant; 3d Lt., Third Lieutenant (U. S. Coast Guard); Lt. (j. g.), Lieutenant, junior grade (Navy); Lt.-Col., Lieutenant-Colonel; Lt. Comdr., Lieutenant Commander (Navy); Maj., Major; Maj. Gen., Major General; M. C., Medical Corps; M. D., Medical Department; Med., Medical; M. G. Bn., Machine Gun Battalion; M. G. Co., Machine Gun Company; Mgr., Manager; M. I. D., Military Intelligence Division; M. M. 1cl., Machinist's Mate, first class (Navy); M. M. 2cl., Machinist's Mate, second class (Navy); M. P., Military Police; M. R. C., Medical Reserve Corps; Mr. Elec., Master Electrician; Mr. Engr. (sr. gr.), Master Engineer, senior grade; Mr. Engr. (jr. gr.), Master Engineer, junior grade; Mr. Gun., Master Gunner; Mr. Sig. Elec., Master Signal Electrician; M. T., Motor Transport; M. T. C., Motor Transport Corps; Mus. 1cl., Musician, first class (Navy); Mus. 2cl., Musician, second class (Navy). N. A., National Army; N. C. O., Non-commissioned Officer; N. G., National Guard; N. V. F., National Naval Volunteers. Off. Tr. Camp., Officers' Training Camp; Off. Tr. Sch., Officers' Training School; O. R. C., Officers' Reserve Corps; Ord. Corps., Ordnance Corps; Ord. Dept., Ordnance Department; Ord. R. C., Ordnance Reserve Corps; Ord. Sgt., Ordnance Sergeant. Ph. M., Pharmacist's Mate; Pres., President; Prov., Provisional; Pvt., Private; Pvt. 1cl., Private, first class. Q. M., Quartermaster; Q. M. C., Quartermaster Corps; Q. M. R. C., Quartermaster Reserve Corps. (R.), Radio (Navy); Radio Sgt., Radio Sergeant;

REGISTER OF MILITARY RECORDS

Regt., Regiment; *Regtl.*, Regimental; *Repl.*, Replacement; *R. M. A.*, Reserve Military Aviator; *R. O. T. C.*, Reserve Officers' Training Corps; *Ry. Arty.*, Railway Artillery. *S. A. T. C.*, Students' Army Training Corps; *S. C.*, Submarine Chaser; *Sea.*, Seaman (Navy); *Sea. 2cl.*, Seaman, second class (Navy); *Sec.*, Secretary; *Sec.*, Section; *Ser.*, Service; *Sgt.*, Sergeant; *Sgt. 1cl.*, Sergeant, first class; *Sgt. Maj.*, Sergeant Major; *Sig. C.*, Signal Corps; *Sig. R. C.*, Signal Corps Reserve Corps; *Sn. C.*, Sanitary Corps; *Sn. Sqd.*, Sanitary Squad; *Sn. Trn.*, Sanitary Train; *S. N. T. C.*, Students' Navy Training Corps (Naval Unit, S. A. T. C.); *S. O. S.*, Service of Supply; *Spad.*, An abbreviated name for a type of French pursuit plane; *S. P.*, Submarine Patrol; *Sq.*, Squadron; *Sqd.*, Squad; *Sr.*, Senior; *S. S.*, Steamship; *S. S. U.*, Service Sanitaire (United States); *Sup. Co.*, Supply Company; *Supply Sgt.*, Supply Sergeant; *Sup. Trn.*, Supply Train; *Supt.*, Superintendent; *Sur. Gen.*, Surgeon General. (T), Temporary; *T. C.*, Transportation Corps; *Tank C.*, Tank Corps. *U. S. A.*, United States Army; *U. S. N.*, United States Navy; *U. S. N. R. F.*, United States Naval Reserve Force; *U. S. N. R. F.*, Class 4, United States Naval Reserve Force, Shore Service; *U. S. N. R. F.*, Class 5, United States Naval Reserve Force, Aviation; *U. S. S.*, United States Ship; *U. S. S. C.*, United States Submarine Chaser; *U. S. S. P.*, United States Submarine Patrol. *F. B.*, Abbreviation for name of inventor of common French rifle grenade. *W. D.*, War Department; *Y. 1cl.*, Yeoman, first class (Navy); *Y. 2cl.*, Yeoman, second class (Navy); *Y. (F.)*, Yeoman (female), (Navy).

FACULTY, INSTRUCTING AND ADMINISTRATIVE STAFF

- ALDRIN, E. E. See Class of '17.
- BALTZLY, ALEXANDER, 1st Lt., Inf. Entered Service 14 May '17; 317th Inf., 15 Aug. '17; 155th Depot Brig., 21 Feb. '18; M. G. Tr. Center, Camp Hancock, Ga., 13 May '18; 32d M. G. Bn., 4 Nov. '18—4 Feb. '19.
- BARRY, J. G., Lt.-Col., C. W. S. 1st Lt., C. W. S., 29 Sept. '17; Maj., 13 July '18; Lt.-Col., 14 Feb. '19. Casual Engrs., 5 Jan. '18. A. E. F., 10 Feb. '18—30 June '19; in charge of Gas Defense, A. E. F., under Chief, C. W. S.; Personnel Officer, C. W. S. Personal letter of thanks from Comdr. in Chief.
- BATCHELER, C. C., 2d Lt., 2d Bn., Dartmouth, S. A. T. C. (Page 4.)
- BEATTIE, J. A. See Class of '17.
- BOAL, H. W., 2d Lt., Inf. Pvt. 1 cl., Inf., 10 May '17; transferred Arty., June '18; transferred Inf. Oct. '18; 2d Lt., Inf., May '19. A. E. F., July '18—Sept. '19.
- CARB, DAVID, 2d Lt., F. A. Driver, American Ambulance, Jan. '15; Amer. Red Cross; Foreign Legion; Aspirant, Sept. '18; 2d Lt., F. A., June '19. Second Battle of Ypres; with British Fifth Army in disaster of 21 Mch. '18; Champagne-Marne Defensive; Meuse-Argonne Offensive. Croix de Guerre with Gold Star. (Pages 147 and 162.)
- CARR, J. A., 2d Lt., C. A. C., Dec. '18. Entered Service, June '18; Plattsburg Tr. Camp; transferred to C. A. C. Tr. Camp.
- CAWLEY, R. R., 2d Lt., Q. M. R. C., 7 Dec. '18. Entered Service, 5 Sept. '18; Camp Johnston, 5 Sept.—7 Dec. '18.
- CHASE, E. P., Sec. Y. M. C. A. In Educational Dept., English Hq., London, England, June '17—Apr. '18.
- CLARK, H. F. See Class of '12.
- CROSBY, W. A. See Class of '17.
- DAVIS, T. L. See Class of '13.
- DELLENBAUGH, F. S., JR., Capt., Sig. C. Sgt. 1 cl., Sig. C., 5 July '17; acting 1st Sgt.; 1st Lt., Sig. R. C., 4 Feb. '18; Capt., Sig. C., 24 Oct. '18. 103d Field Sig. Bn., 28th Div., 15 July '17. A. E. F., 16 Feb. '18—26 Mch. '19.
- DILLON, T. H., Col., Engrs. Graduated, U. S. Military Academy, '04. A. E. F., 8 July '18—3 Aug. '19; 37th Engrs.; Asst. Chief Engr., First Army. Aisne-Marne Offensive (Château-Thierry); St. Mihiel Offensive; Meuse-Argonne Offensives. Citation.
- DOUGLAS, R. D., Ensign, (D.), U. S. N. R. F. Sea. 2 cl., N. Y. Naval Auxiliary, 5 Feb. '18. Hingham, Mass.; S. S. Mieler Apr.—July '18; Inst., Officers Communication School, New York City, Sept. '18—Feb. '19.
- EMERSON, WILLIAM, Maj., Amer. Red Cross. A. E. F., 20 June '17—6 Mch. '19. Chevalier of the Legion of Honor.
- FAULKNER, H. U., Pvt., Inf. Co. A, 348th Inf., Camp Dix, N. J., 29 May '18; transferred to Psychological Unit, Co. C, Camp Medical Detachment, 1 Aug. '18; transferred F. A. Cent. Off. Tr. Sch., Camp Taylor, Ky., 10 Oct. '18—29 Nov. '18.
- FULLER, E. W., 1st Lt., C. W. S. Entered Service, Nov. '17. A. E. F., Aug.—Dec. '18.
- GUNN, S. M. See Class of '05.
- HALL, W. T. See Class of '19.
- HANSCOM, C. D. See Class of '18.
- HARDY, A. C. See Class of '18.
- JACKSON, D. C., Lt.-Col., Engrs. Maj., 20 Apr. '18; Lt.-Col., Jan. '19. A. E. F., May '18—May '19; Chief Engr., Technical Bd., under general purchasing agent, S. O. S., co-ordinating and procuring mechanical and electrical power to meet requirements of port developments; after armistice, Chief Engr., War Damages Bd., in charge of estimating money value of damage to property in the devastated areas of allied countries on behalf of American members of Reparation Sub-Comm. Chevalier, Legion of Honor. See Civilian Record and pages 145, 219 and 225.

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- KEITH, H. H. W. See Class of '05.
KEITH, SCOTT. See Class of '19.
KENNARD, J. W. See Class of '18.
KEYES, F. G., Maj., C. W. S. Capt., 28 Dec. '17; Maj., 3 Sept. '18. Entered Service, 28 Dec. '17. A. E. F., 30 Mch. '18; director of C. W. S. Laboratory, Puteaux (Seine) and research and control work for other Army branches. (Page 209.)
KNOWLAND, T. M. See Class of '18.
LANGLEY, E. F., Pvt., S. A. T. C., Plattsburg, N. Y., 10 Aug. '18; Hon. Disch. from service to take up instruction in S. A. T. C. at M. I. T., 7 Sept. '18. See Civilian Record.
LIDDELL, W. A. See Class of '16.
LUTHER, H. B. See Class of '08.
McADAMS, W. H. See Class of '16
McCOBB, A. L. Reported Inst. in Modern Languages, U. S. N.
MAGUIRE, J. F., JR. See Class of '17.
MAYBACH, A. A., Col., C. A. C. Entered Service, 12 June '07; Maj., General Staff; Lt.-Col., 6 May '18; Col., 1 Sept. '19—26th Div., 15 Aug. '17—6 May '18; General Staff, Washington, D. C., 6 May '18. A. E. F., 28 Oct. '17—6 May '18. Bois Boule, 22 Apr. '18; Seicheprey, 30 Apr. '18.
MORSS, P. R., 2d Lt., F. A. Entered Service, 21 Sept. '17; 2d Lt., 12 July '18. 301st F. A.; Off. Tr. Camp, 5 Jan. '18; 330th F. A., 2 Aug. '18. A. E. F., 16 Apr. '18—12 Apr. '19.
MULLIKEN, S. P. See Class of '87.
NORRIS, J. F., Lt.-Col., C. W. S. Entered Service, 11 June '18; in charge C. W. S. for England investigating chemical factories in Germany. A. E. F., 15 July '18—21 June '19. See Civilian Record and pages 253 and 257.
PARKER, H. C., Ensign, U. S. N.
PHILBRICK, F. B. See Class of '18.
PRATT, A. P. See Class of '16.
PRESCOTT, S. C. See Class of '94.
PUTNEY, E. W., Lt.-Col., C. A. C. Graduate¹ U. S. Military Academy and commissioned 2d Lt., C. A. C., 14 Feb. '08; 1st Lt., 2 Jan. '09; Capt., 1 July '16; Maj. (T.), 10 Feb. '18; Lt.-Col. (Emergency), 16 Oct. '18. Key West Barracks, Fla., Oct. '16—July '17; Btry. B, 52d C. A. C., Ft. Adams, R. I., July—Aug. '17. A. E. F., 18 Aug. '17—Mch. '19. 52d C. A. C.; transferred as Inst. to Hy. Art'y. Sch., A. E. F.; Director of Instruction and Asst. Commandant of School; transferred Office of Chief of Arty., A. E. F., G. H. Q.
REED, H. F., Corp., Inf. 21st Co., 151 Depot Brig.; transferred to F. A. Cent. Off. Tr. Sch., Camp Taylor, Ky., 8 Sept. '18. See Civilian Record.
RILEY, J. C. See Class of '98.
ROSS, W. B. See Class of '17.
RUCKMAN, J. H. See Class of '10.
SCHOLES, F. V., Pvt., F. A. Entered Service, 22 Aug. '18; Co. D, 2d Regt., F. A. Repl. Depot, Camp Jackson, S. C.; transferred to 4th Co., F. A. Repl. Depot, Oct.; transferred to Co. C, 1st F. A. Repl. Depot, 30 Nov. Disch. 4 Jan. '19.
SIMPSON, S. G. See Class of '16.
SMITH, A. S., Maj. Engrs. Hq. Northeastern Dept., Boston, Mass. (Page 280.)
SMITH, H. W. See Class of '97.
TAYLOR, J. S., Ensign, U. S. N. R. F. (A.). Sea. 2 cl., U. S. N. R. F. (A.), 23 Oct. '17; C. Q. M., 1 Apr. '18; Ensign, 20 Aug. '18. Student Flight Officer, U. S. Naval Aviation Detachment, M. I. T., 1 Apr. '18—20 June '18; Inst. in Aerial Navigation, Naval Aviation Detachment, M. I. T., 20 June '18—18 Feb. '19.
TOWER, G. S. See Class of '05.
TOWNSHEND, BAILEY. See Class of '16.
TURNER, C. E. See Class of '17.
VAUGHN, J. T., 1st Sgt., C. A. C. Entered Service, 14 Nov. '04. A. E. F., 18 Aug. '17—4 Feb. '19. Toul Sector, 13 Apr.—30 June '18; Champagne-Marne Defensive, 15 July '18; Aisne-Marne Offensive, 24 July—13 Aug. '18; St. Mihiel Offensive, 12-16 Sept. '18; Meuse-Argonne Offensive, 26 Sept.—11 Nov. '18.
VENABLE, C. S. See Class of '17.
WALKER, W. H., Col., C. W. S. Lt.-Col., 11 Nov. '17; Col., 1 Mch. '18. C. O., Edgewood Arsenal throughout the war. Distinguished Service Medal. (Pages 142, 253 and 254.)
WALWORTH, W. F. See Class of '19.
WEBSTER, D. L., Capt., Aviation Sect., Sig. R. C. 1st Lt., Aviation Sect., Sig. R. C., 15 Nov. '17; Capt. 25 Oct. '18. Div. of Science and Research; transferred Bu. Aircraft Production 24 July '18; disch. 15 Jan. '19.

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WHIPPLE, G. C. See Class of '8.

WIENER, NORBERT, Pvt., Ord. Corps. Aberdeen Proving Grounds, Md., 1 Nov. '18—3 Feb. '19.

YEATON, P. O. See Class of '17.

YOUTZ, M. A., Sgt. 1 cl., C. W. S. Mus. 3 cl., Inf., 18 Sept. '17; transferred Ord. Corps., 24 Dec. '17; Sgt., Chemical Service Sect., 1 May '18; Sgt., C. W. S., 1 Aug. '18, Sgt. 1 cl., 1 Dec. '18. Disch., 28 Feb. '19.

FORMER STUDENTS AND UNDERGRADUATES

1870

BIXBY, W. H. (I) Brig. Gen., U. S. A., (retired). Returned to active service 1 June '17—22 Apr. '19; Div. Engr., Western Div., U. S. River and Harbor Improvements, with headquarters at Kansas City, Mo.; Dist. Engr., Kansas City, Mo. and Dist. Engr., St. Louis, Mo., U. S. River and Harbor Improvements; Sec. and Pres., Mississippi River Comm.; Inspector and Supt., 15th Light House Dist. covering lights and buoys on Mississippi River from the mouth of the Missouri River to New Orleans; Dist. Engr., U. S. River and Harbor Improvements, Chicago, Ill.

1873

RIPLEY, H. L. (I) Col., Cav., attached Sig. C. In charge of Sig. C., General Supply Depot, Ft. Sam Houston, Texas.

1875

MIXTER, S. J. (VIII) Lt.-Col., M. R. C. Lt., 5 July '08; Maj., 11 Apr. '17; Lt.-Col., 3 Dec. '19. Surgeon General's Office, Washington, D. C.; Base Hosp., Camp Devens, Mass.; Camp Meade, Md.

1876

TOBIN, J. A. (II) Lt. C. E. C., U. S. N., (retired).

1877

QUINBY, G. F. (S. M. A.) Col., C. A. C. Mass. C. A. C., Ft. Warren, Mass.; commanding 66th Regt., C. A. C.

1878

FISHER, W. B. (III) U. S. N. R. F., Mch.—May '17. Discharged on account of physical disability.

1879

MONTGOMERY, H. M., (S. M. A.), Maj., Q. M. C. Cons. Div., 13 Feb. '18—15 Feb. '19.

WAITT, A. M. (II) Maj. Engr. R. C., 23 Jan. '17. Resigned Jan. '18 on account of physical disqualification. See Civilian Record.

1880

PERRY, A. P., Capt., M. C. 1st Lt., 21 July '17; Capt., 7 Sept. '17. Discharged, 11 June '19.

1881

CABOT, G. L., Lt., U. S. N. R. F. Ensign, Mass. Volunteer Militia, 26 June, '16; Lt. 20 Mch. '17. C. O., Marblehead Aviation Detachment, 16 Apr.—15 Aug. '17; patrolled Mass. Bay in seaplane, 4 Dec. '17—3 Oct. '18; Hampton Roads, 7 Oct. '18; on inactive list 22 Mch. '19. (Page 279.)

LANGDON, G. W., (S. M. A.), 1st Lt., U. S. Guards, 10 July '18—26 Dec. '18.

1882

WOOD, J. P. (II) Col., 1st Pa. Cav., '17. 103d Engrs., Camp Hancock, Ga.; Q. M. C., Washington, D. C.

1883

HUNT, C. D., Capt., U. S. A., (retired).

LITTLE, D. M., Lt. Comdr., U. S. N. R. F. Lt. 26 Apr. '17; Lt. Comdr., July '18; inactive list, 6 Aug. '19.

1884

RICHARDS, F. B. (III) Lt.-Col., General Staff. Capt., Ord. R. C., 1 May '17; active service, 15 Jan. '18; Lt.-Col., General Staff, 4 Mch. '18. See Civilian Record.

1885

EATON, C. W. (I) 2d Lt., Amer. Red Cross, 24 Sept. '18. A. E. F. until May '19. (Page 83.)

FISKE, REDINGTON (III) Capt., Q. M. C. Pvt., 1st Motor Corps, Mass. State Guard, May '17; Capt. and Supply Officer, 13th Regt., Mass. State Guard, 24 July '17—29 Mch. '18; Capt., Q. M. C., Oct. '18—Mch. '19.

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TECHNOLOGY'S WAR RECORD

HOMER, E. B. (IV) Sec., Y. M. C. A., attached to Le Foyer du Soldat. Entered Service 27 June '18. A. E. F., Director, Foyer du Soldat, with French Army, Le Mesnil-sur-Oger, 18 Sept.—24 Dec. '18; Y. M. C. A. Army Educational Comm., Paris, in charge of Personnel Sect., Fine Arts Div., 1 Jan. '19; Asst. Supervising Architect. A. E. F. University, Beaune, 18 Feb. '19; Y. M. C. A. Army Educational Comm. became Army Educational Corps, 15 Apr. '19; Assoc. Director, College of Fine Arts; Dean of Faculty, College of Fine Arts; Head of Dept. of Architecture, A. E. F. University, Beaune, until 29 June '19.

SISE, LYMAN, Capt., Engr. R. C., 17 June '17. Disch. for physical reasons, 11 Dec. '17. See Civilian Record.

*THAW, A. B. Reported Capt., M. C. Reported as having died in France, 19 Aug. '18. The report was received after the chapter containing the Roll of Honor had gone to press.

1886

BORDEN, R. P. (II) Maj., attached to G-3, General Staff, 9 Nov. '18—13 Mch. '19. See Civilian Record.

*HIGGINS, E. E. See Roll of Honor. (Page 114).

KILLINGER, J. W. (S. M. A.) Sec. Y. M. C. A., A. E. F., '18—'19, at Château-Thierry and Paris.

WILSON, F. S. (Sp) Capt., Q. M. C.

1887

*COBB, M. E. See Roll of Honor (page 128).

DRAPER, G. O. (II) Capt., A. S. Entered Service, 14 Feb. '18. School of Military Aeronautics, Cambridge, Mass.; Camp Dick, Dallas, Texas, May—June '18. A. E. F., July '18—Dec. '18; Compass Officer.

MULLIKEN, S. P. (V) Maj., C. W. S., Adm. Div. Chief of Confidential Technical Information Sect., Hq., Chief of C. W. S., Washington, D. C., 11 May '18—6 Jan. '19.

NORRIS, G. L. (III) Maj., Aviation Sect., Sig. C. Chief Metallurgist, Aviation Sect. Sig. C.; Dist. Mgr. of Production, Pittsburgh Dist., Aviation Sect., Equipment Div., Sig. C. (later Pittsburgh Dist., Bu. Aircraft Production); Metallurgist in Charge, Metal Sect., Raw Material Procurement Div., Bu. of Aircraft Production, Washington, D. C. Service U. S., 9 Nov. '18—1 Jan. '19. (Page 269.)

SEVER, G. F. (VI) Maj., Office of Chief of Engrs. War Industries Bd., 1 Mch. '18—23 May '19.

*SOUTHER, HENRY (III). See Roll of Honor (pages 115 and 269).

SPAULDING, H. C. (II) Capt., Q. M. R. C. Entered Service 1 Oct. '17; Army Transport Service, Q. M. C., 28 Feb. '18; C. O. Cons. and Repair Div., Bush Terminal; Port Q. M., Comdr. of Forces representing U. S. A., Halifax, N. S., 8 Aug. '18; Surplus Property Officer, Property Div., Hoboken, N. J. Hon. Disch. 29 Oct. '19.

1888

ALLEN, G. S., Capt., M. C. Entered Service, 31 Aug. '18. See Civilian Record.

DANIELL, E. S. (II) Maj., Ord. Corps. Auxiliary Sect., Adm. Div., Washington, D. C., 9 Sept. '17.

HORN, H. J. (I) Maj. and Deputy Commissioner, Amer. Red Cross Comm. to Russia; Vice Chairman, Amer. R. R. Comm. to Russia, June '17—Feb. '18.

JORDAN, E. O. (VII) Director, Red Cross Laboratory Car "Lister," a car sent to various camps at request of Surgeon-General to aid in organizing laboratory work and to assist in epidemics of meningitis, pneumonia etc.; made special reports regarding Camp Doniphan, Camp Johnston, and Camp Jackson.

LAIST, T. F. (IV) Maj., Engrs. Maj., 3d Engrs. Training Camp, 27 Dec. '17; Cons. Div., Feb. '18; Supervising Cons. Q. M., National Army and National Guard Camps. Disch. 11 Feb. '19.

MOORE, G. D., Brig.-Gen. (T) U. S. A. Entered U. S. Military Academy 15 June '86; Lt. Col.; Col., 5 Aug. '17; Brig. Gen., (T.), 1 Oct. '18. C. O. 7th Inf. on Border; Inspector General Dept., Boston, Mass., 24 May '17; Washington Office of Inspector Gen. until 12 Mch. '18. A. E. F., 12 Mch. '18—31 Mch. '19; Inspector Gen., 2d Corps on British Front; Commander of 169th Brig. (85th Div.) at Toul. Somme Offensive (Hindenburg Line to Oise Canal) Sept.—Oct. '18. (Page 172.)

•PLUMMER, T. R. (IV). See Roll of Honor (pages 112, 150 and 292).

SMITH, J. C. (V) Director, Department Stores, Amer. Red Cross, France and Switzerland; engaged in Prisoner of War and Civilian Relief; Member French Red Cross; Duryea War Relief.

THOMPSON, S. E. (I) Lt.-Col., Ord. R. C. Maj., Ord. R. C., 19 Dec. '17; Lt.-Col., 14 Oct. '18. Control Bu. Ord. Dept., Washington, D. C., until 21 Dec. '18. (Page 260.)

WOOD, F. J., Maj., Engrs. Maj., Cons. Div., Engrs., 18 Oct. '17; Curtis Bay Ord. Dep., 1 Nov. '17; Staff of Chief of Sect. C., Ord. Dept., Washington, D. C., 22 July '18; transferred to Contracts Branch, Cons. Div., preparing plans for purchasing Army Camps Devens, Meade, Lee, Custer, Taylor, Pike and Travis, 1 Dec. '18; appointed Supervising Acquisition Officer for buying Camps Devens, Lee, and Meade.

1889

BEAMAN, W. M. (I) Maj. Engrs. Office of Chief of Engrs., Washington, D. C., 16 July '17— 31 Mch. '19.

CABOT, J. W. (I) Field Clerk, Q. M. C., in office of the Zone Supply Officer, U. S. A., Boston, Mass.

CROWNSHIELD, B. B. (Sp.) Volunteer Driver, Sect. 7, American Sn. Sect., French Army, 1 Jan.—1 July '16. Champagne and Argonne Fronts at Somme-Suippe, Rery, and Verdun during German attack. See Civilian Record. (Page 285.)

REGISTER OF MILITARY RECORDS

- EMERSON, H. D. (I) Maj., Engrs., 8 Oct. '17. C. O., 44th Engrs., Camp Harrison, Apr. '18. A. E. F., July '18—July '19; C. O., 1st Bn., 1st Ry. Arty., Oct. '18; loaned to Inspection Div., M. T. C., Nov. '18; ordered to War Damage Bd., Paris, Head of Finance and Economic Comm., Greek Mission, Jan. '19; Lecturer on Finance, Economics and Railroads, A.E.F. University at Beaune, Mch. '19; C. O., 239 Le Mans Bn., June '19. Hon. Disch. Aug. '19.
- FRENCH, E. V. (II) Maj., Q. M. C., 8 Apr. '18. A. E. F., May '18—30 May '19; Chief, Bu. of Fire Prevention, 17 June '18.
- GUPPY, B. W. (I) Lt.-Col., Engrs. Maj., 16 Apr. '17; Lt.-Col., 19 Mch. '18. Assigned 1st Bn., 14th Engrs. (Ry.), 16 May '17. A. E. F., Aug. '17—9 Feb. '19; assigned 3d British Army as Ry. Troops, at Front, 21 Aug.; commanded detachment operating 50 miles of 60 cm. light railway, salvaging material from Somme Battlefield, 5 Sept. '17—17 Mch. '18; built light railways southwest of Arras, Apr.—May '18; in command 14th Engrs., 6 July—6 Sept.; Ry. repair work at Fere en Tardenois with 1st Army, 2 Aug.; road repairs, Marne Salient, 3d Corps, 14 Aug.; Second in Command at Camp Hunt, Le Corneau, 6 Sept.; Supt. Port Terminal Facilities, St. Nazaire, 16 Oct. '18—18 Jan. '19. (Page 168.)
- PIKE, C. W. (VI) Maj., Ord. Corps. Maj. Ord. Corps, 16 Jan. '18; co-ordinating work of Engr., Procurement, Production, Inspection and Supply Divisions; Head, Small Arms Branch, June '18; Acting Head, Progress Sect., Nov. '18; Chief, Statistical Sect., Dec. '18. Disch., 15 Apr. '19.
- POWER, C. W. (VI) Maj., Ord. Corps. Office of Chief of Ord., 29 Jan. '18.
- ROGERS, H. L. (II) Maj. Gen., Q. M. C. Entered Service, 2 May '98; Brig. Gen., N. A., 5 Aug. '17; Brig. Gen., Q. M. C., 26 Feb. '18; Maj. Gen., Q. M. Gen. of Army, 22 July '18. A. E. F., 13 Aug. '17—31 Jan. '19; Chief Q. M. Distinguished Service Medal; Companion of the Bath (British); Commander of the Legion of Honor (French); Commander of the Order of the Crown (Belgian). (Pages 141 and 210.)
- SANBORN, F. E. (II) Capt., Sn. C. Carlisle, Pa., 30 Aug.—22 Nov. '18; Asst. Director, Educational Service and Head of Technical Dept., Walter Reed General Hosp., 23 Nov. '18; Chief of Educational Service, Reconstruction Dept., General Hosp. No. 19, Oteen, N. C., 30 Oct. '19.
- SMITH, H. D. (II) Col., 157th Inf.
- WHIPPLE, G. C. (I) Maj., Amer. Red Cross. Deputy Commissioner to Russia, 29 June '17—21 Oct. '17; Sr. Sn. Engr. (grade of Lt. Col.), U. S. Public Health Service Reserve, 26 Feb. '19; served on various comms., state and national; in charge Hygiene and Sanitary Course, S. A. T. C., Harvard University. (Page 289.)
- WHITING, JASPER (III) Maj., C. W. S. Capt., Aviation Sect., Sig. R. C., 22 Jan. '18; Maj., C. W. S., 17 July '18. Pres., Washington Examining Bd. A. E. F., 26 Sept. '18—23 Dec. '18; Officer in Charge, British-American Anti-Gas Liaison Service, London. Meuse-Argonne Offensive, 3-9 Nov. '18. Specially commended for services to A. E. F. in personal letter from Gen. Pershing.
- WRIGHT, E. V. (S. M. A.), Mus. 1 cl., U. S. N. R. F. Commonwealth Pier Band, Oct. '17—April '18; Naval Aviation Detachment Band, M. I. T., 10 Apr. '18; Naval Radio School, Cambridge, Mass.

1890

- ALDEN, C. H. (IV) Capt., Q. M. C. Supply Officer, Ambulance Sect., 311th Sn. Train, 86th Div., Camp Grant, Ill., 16 Oct. '17; Officer in Charge of Cons. and Repair, Boston Depot, Q. M. D., 10 Nov. '17—22 Sept. '18. A. E. F., 20 Oct. '18—26 July '19; Asst. to Chief Q. M., 6th Army C., Belleville, 20 Oct.; on staff of Engr. Officer in Charge of Cons., Amer. Embarkation Center, Le Mans, Sarthe, 13 Nov. '18—26 July '19. (Page 319.)
- BLOOD, J. B. (VI) Lt. Comdr., U. S. N. Sr. Lt., U.S.S. Nebraska, 6 Apr. '17; in command U.S.S. Nokomis (later Kwasing), as Station Ship to Military Governor in Santo Domingo, Aug. '17—5 July '19; Sr. Watch Officer on U.S.S. President Grant. Disch. 25 Aug. '19.
- BROWNELL, E. H. (I) Comdr., C. E., U. S. N. Entered Service, 24 Oct. '02; Civil Engr. with rank of Lt. Comdr. as Public Works Officer, Navy Yard, Portsmouth, N. H., 6 Apr. '17; Civil Engr. with rank of Comdr., Bu. Yards and Docks, Navy Dept., Washington, D. C., 1 July—13 Oct. '17. A. E. F., Nov. '17—Mch. '18; established seaplane, dirigible and fuel stations on French and Irish Coasts. Returned to Bu. of Yards and Docks, Washington, D. C., on foreign work, Mch. '18; Navy Yard, Portsmouth, N. H., as Public Works Officer, 16 May '18.
- CURTIS, W. G., Capt., M. R. C. Volunteered for duty, 6 May '18; Medical Off. Tr. Sch., Camp Greenleaf, Ga., 5 Sept. '18; Staff of General Hosp. No. 14, 7 Oct. '18—30 Nov. '18. Capt., M. R. C., 15 Feb. '19.
- FLOOD, S. D. (II) Ensign, U. S. N.
- SCHIEFFELIN, SCHUYLER (VI) Capt., Sig. C. Capt., 27 Sept. '17; C. O., 493d Aero Sq., 8 Nov. '17. A. E. F., 22 Nov. '17—22 Jan. '19.
- WAITE, H. M. (I) Col., Engrs. Lt.-Col., Engrs. T. C., 29 Jan. '18; Col., 4 Oct. '18. A. E. F., Jan. '18—Feb. '19; Deputy Director General of Transportation; Engr. of Cons. of T. C., in charge of all railroad, port and harbor work, May '18; Member, Comm. of Supreme War Council, to investigate improvements on French-Italian Railways, July; Member, Comm. to make suggestions for improvements in S.O.S.; attached to 2d Army and member of board to investigate how French railways could be put under Amer. management, Oct.; detached service, Deputy Director General of Transportation, Oct.; attached to 3d Army, Nov.; Member, Bridgehead Comm. to arrange for occupancy of Coblenz Bridgehead, Dec. '18; at Triers, under Civic Sect. of Advanced G. H. Q. in charge of utilities of occupied territory, Jan. '19. Army of Occupation. Officer, Legion of Honor; Distinguished Service Medal; Citation from G. H. Q. (Pages 142 and 213.)

TECHNOLOGY'S WAR RECORD

WALKER, E. D. (I) Maj., Engrs., Capt., Engr. O. R. C. 21 Mar. '17; active service 8 May '17; Maj., 6 Oct. '19, 1st Off. Tr. Camp, Ft. Niagara, N. Y., 8 May—11 June '17. A. E. F., July '17—25 Jan. '19; 5th Reserve Engrs. (later 15th Engrs.), 12 June '17—25 Oct. '18; Water Supply Service, Div. Cons. and Forestry, Hq. S. O. S., 26 Oct. in charge water supply and sanitary installations, Base Sect. Nov. 4, 1 Nov—15 Dec. '18. Office Chief of Engrs., 26, Jan. '19

1891

CAMPBELL, JEREMIAH (II) Maj., Engrs., 6 Oct. '17. A. E. F., 22 Nov. '17—Apr. '19; Engr. at Bordeaux, 17 Dec. '17; Staff of Transportation C., Paris and Tours, Feb. '18; C. O., Engrs., and Supt. of Army Transport, Les Sables d'Olonne, Vendee, Aug. '18; Supt. of Embarkation, St. Nazaire, Mch.—Apr. '19. Decorated by French Govt. with Merite Agricole; cited by Director, Army Transportation Corps.

COLES, S. L. (VI) Capt., Ord. Corps. Capt., Nitrate Div., Ord. Dept., 17 Jan. '18; C. O. and Inspector of Cons., U. S. Nitrate Plant No. 2, Muscle Shoals, Ala., 4 Mch. '18; Asst. Director of Operations, U. S. Nitrate Plant No. 2, 30 Sept. '18—9 Jan. '19.

GOVE, ANNA M. (VII) Organized Red Cross Auxiliary at North Carolina College for Women, and first aid classes, '17; supervised Red Cross Work Rooms, summer '17; with Dept. of Civilian Relief, Amer. Red Cross, France, Mch. '18; Med. Director, Smith College Unit, Greecourt, Somme, working under French Govt., Apr.—Aug. '19.

HENDERSON, W. P. (IV) Capt., Amer. Red Cross. Lt., Bu. of Cons., 24 Apr. '18; Capt., Sept. '18. A. E. F., 10 May '18—15 Apr. '19; in charge of cons. work in Southwest Zone, Amer. Red Cross, July '18—Jan. '19; welfare work, with 91st Div., at Le Ferte-Bernard, Sarthe.

HOOPER, G. K. (II) Lt.-Col., Ord. Corps. Maj., Ord. Corps., 27 Apr. '18; Lt.-Col., 5 Oct. '18. Head of Truck Sect., Production Div., Washington, D. C., 5 May '18. Personal letter of congratulation from Chief of Ord., on completion of service.

KIMBALL, H. S. (X) Capt., Ord. Corps. Nitrate Div., Ord. Dept., 26 June '17; Chief, Engr. Sect., Washington, D. C., 22 Nov. '17—13 Nov. '18.

*LEEMING, WOODRUFF (IV). See Roll of Honor (pages 126 and 211).

TAPPAN, E. S. (V) Sec. Y. M. C. A., with Le Foyer du Soldat, at Chalons-sur-Marne, Francheville (Marne) and Dampierre-sur-Moivre, Nov. '17 until armistice; at Nautivet, near Suippes (Marne), Pauvres (Andennes), Ste. Menehoulde (Marne) on edge of Argonne Forest, Camp de Chelons and Mourmelon-le-Grand, and Brest, Nov. '18—7 Sept. '19.

SCUDDER, M. S., Capt., Inf. 2d Off. Tr. Camp, Presidio, Calif., 24 Aug. '17; Capt., Inf., 27 Nov. '17. A. E. F. 6, July '18—4 Aug. '19; Capt. and Rept. Adj., 361st Inf., 12 Oct. '18; transferred to 23d Inf., 1 Feb. '19. St. Mihiel Offensive, 12-16 Sept. '18; Meuse-Argonne Offensive, 26 Sept.—12 Oct. '18; Ypres-Lys Offensive, 31 Oct.—11 Nov. '18. Wounded near Epinonville, France, 27 Sept. '18; gassed at Evangelibloom, Belgium, 1 Nov. '18. Disch. 17 Oct. '19.

WAIT, E. R. (IV) Sec. Y. M. C. A., with 9th and 8th Italian Armies. Entered Service, Nov. '18; Field Sec. at Cervignano, Italy, Jan. '19; Regional Director at Udine, Mch.—June '19; attached to Hq., Rome, and on Special Missions to Albania, July—Sept. '19.

WELLS, G. F. (VI) Maj., Ord. Corps. Supply Div., Ord. Dept., 29 Dec. '17. See Civilian Record and page 337.

1892

ATWOOD, JOSHUA (I) Capt., Inf., U. S. Guards. Hq., Northeastern Dept., 11 Jan. '18; Springfield Armory, Mass., June '18; recruiting at Bridgeport, Conn., Oct. '18; C. O. Bn., 8th U. S. Guards, Springfield, 13 Nov. '18—7 Feb. '19.

BLAKE, G. B. (Sp.) 1st Lt., Instructing Staff, Harvard University R. O. T. C., May—Aug. '17.

BURRAGE, SEVERANCE (VII) Maj., Amer. Red Cross. Special Comm. to Serbia, Aug. '17. Order of the Royal Red Cross of Serbia; Serbian Order of San Sava. See Civilian Record.

DUBOIS, B. P. (VI) Capt., U. S. N. Pay Corps, Naval Station, New Orleans, La.

FELAND, LOGAN (IV) Brig. Gen., Marine Corps. Capt. of Volunteers, Spanish War, Apr. '98—May '99; 1st Lt. Marine Corps., 1 July '99; Lt.-Col., Apr. '17; Col., 1 July '18; Brig. Gen., 9 Mch. '19. A. E. F., 13 June '17—Mch. '19; in command, 5th Regt. Marines, 2d Div., July '18—Feb. '19; in trenches east of Verdun, Mch.—May '18; Bois de Belleau, northwest of Château-Thierry, June '18; commanded 5th Regt., U. S. Marines, in offensive south of Soissons, July; in trenches, Pont-a-Mousson Sector, Aug.; Offensive of St. Mihiel Salient, Sept.; Offensive with 4th French Army in Champagne, N. E. of Rheims, Oct.; Meuse-Argonne Offensive, Nov.; March to the Rhine, Nov.—Dec.; Army of Occupation, Dec. '18—Mch. '19. Distinguished Service Cross; Distinguished Service Medal; Croix de Guerre with Palm, Gold and Bronze Stars (6 citations); Officer of the Legion of Honor. (Pages 132 and 174.)

HALL, J. W., Capt., A. S. C. 1st Lt., 1st Mass. Cav., (later 102d M. G. Bn.), 25 July '17; Capt., Army Service Corps, 22 Oct. '18. A. E. F., 23 Sept. '17—15 Sept. '19; Supply Officer, Advanced Sect., Lines of Communication, 18 Feb. '18; Post Adj., Advance, Depot No. 1, S. O. S., Is-sur-Tille, 25 Feb. '18—1 Sept. '19.

KALES, W. R. (II) Capt., A. S. Supply Div., A. S., Washington, D. C., 9 Apr. '18. A. E. F., France and Germany, 26 Aug. '18—21 Sept. '19; Asst. Supply Officer, 4th Air Park, 6 Nov.; Supply Officer, 1st Air Park, 12 May '19. Served as casual in one defensive sector; Meuse-Argonne Offensive; Army of Occupation. See Civilian Record.

REGISTER OF MILITARY RECORDS

- KENDALL, A. L. (II) Capt., C. A. C. 2d Co., Mass. C. A. C. National Guard, 25 July '17; 17th Co. C. A. C., Boston, 31 Aug. '17; Off. Tr. Camp, Ft. Monroe, 1 May—30 June '18; Ft. Comdr., Ft. Warren, Mass., 7 July—17 Oct. '18; 33d Arty., C. A. C., 17 Oct.; Camp Eustis, Va., 30 Oct.—23 Dec. '18.
- MATTHEWS, A. P. (VII) Capt., Q. M. C. Capt., Q. M. C., Feb. '18. Staff Hq., Central Dept., Chicago, in Cons. and Repair Branch, 22 Aug. '18—26 Oct. '19.
- MESSENGER, W. H. (II) Capt., Engrs. 23d Engrs., 12 May '17. A. E. F., 30 Mch. '18—5 Sept. '19; engaged in road building and maintenance; Road Officer, 3d Army Corps, Neuwid on the Rhine. Recommended for Distinguished Service Medal.
- SKINNER, T. H. (IV) Capt., U. S. R., Q. M. C. Capt., Cons. Div., 7 Feb. '17; Field Engr., Camp Dix, 12 June '17; Chas. Q. M., 21 Aug.; Asst. to Officer in Charge, Cons. Div., Washington, D. C., 9 Jan.; inactive duty, R. C., 11 Feb. '18. See Civilian Record and page 4.
- STRITZINGER, F. G. JR., Col., Inf., N. A. U. S. Military Academy, June '90; Col., N. A., 17 Aug. '17; Lt.-Col., (permanent) 3 May '18. Organized 50th Inf., Syracuse, N. Y.; with 153d Depot Brig., Camp Dix, N. J.; C. O. 114th Inf., Camp McClellan, Ala.; C. O., Brigade Repl., Camp Gordon, Ga. A. E. F., 6 July '18—12 June '19; C. O. 53d Inf., 6th Div. Gerardmer Sector, Vosges, 1 Sept.—12 Oct. '18; Meuse-Argonne Offensive, 1 Nov.—8 Nov. '18. Divisional Citation. (Page 136.)
- WARNER, MURRAY (II) Maj., Q. M. C. Maj., Cons. Div., Q. M. C., 26 Oct. '17; Cons. Q. M., Camp Dix, 1 Nov. '18; organized Operation and Repair Dept., Camp Travis, Texas, 1 May '19; in Southern Dept., 5 May '19. See Civilian Record.
- WILLIAMS, H. N. (I) Maj., Engrs. Capt., Engrs., 23 May '17; Maj., T. C., 19 June '18. A. E. F., July '17—25 Feb. '19; in command Co. B, 16th Engrs. (Ry); transferred to Ry. T. C., 26 Aug. '17; Supt. of Rys., Paris, St. Nazaire and Gievres; C. O., 53d Regt. T. C.; C. O., 64th Regt. Engrs. T. C.; Pres. Inter-Allied Ry. Sub-Comm., Hq. Coblenz, Germany, 28 Nov. '18, in charge of German Imperial Rys. in Army of Occupation and in Zone to Neutral Territory (under orders of Marshal Foch). Disch. 10 Mch. '19.
- WORTHINGTON, A. M. (VII) Capt., M. C. Capt., M. C., 30 Apr. '18; A. E. F., Aug. '18—July '19; Head of Laboratory, including post-mortem work, Evacuation Hosp. No. 10, 17 June—5 Nov. '18; Central Medical Laboratories, Dijon, 8-15 Nov. '18; Evacuation Hosp. No. 10, 17 Nov.—21 Dec. '18; Infirmary Officer, 3d Army, Machine Gun and Small Arms Center near Coblenz, 21 Dec. '18—21 July '19. Meuse-Argonne Offensive.

1893

- *ALBEE, O. W. (III). See Roll of Honor (pages 126 and 263.)
- ALDEN, H. W. (II) Lt.-Col., Motor Equipment Sect., Ord. Dept. Maj., 18 June '17; Lt.-Col., 12 Jan. '18. A. E. F., Sept. '17—18 Jan. '18; in charge of tank design, visiting England and France and Belgian Front; American representative, joint English and American conference in London, and at British G. H. Q., on design of Anglo-American 40-ton tank; Chief of Tank, Tractor and Trailer Div., Ord. Dept. Disch. 20 Feb. '19. Distinguished Service Medal. (Pages 138 and 260.)
- BUMSTEAD, DALE (IV) Lt.-Col., Ord. Corps. Maj., 4 May '18; Lt.-Col., 5 Oct. '18. Adviser, Loading Dept.; Contract Officer; Member, Army Commodity Comm. on Explosives and Components; Ex. Staff, Procurement Div., Ord. Dept. Disch. 29 Dec. '18. See Civilian Record.
- CLARKE, T. C. (V) Col., Engrs. Capt., 17 Jan. '17; Lt.-Col., 5 Aug. '18; Col., 5 Sept. '18. Active service, 8 May '17. A. E. F., 13 Apr. '18—15 Apr. '19; 110th Engrs., 35th Div. St. Mihiel Offensive; Meuse-Argonne Offensive. Croix de Guerre with Palm and Gold Star. (Page 188.)
- GUPPY, GEORGE (II) 1st Lt., A. S. A., 6 Nov. '17—11 Jan. '19.
- RICE, H. L. (X) Lt.-Col., Ord. Corps. Maj., 21 Feb. '18; Lt.-Col., 12 July '19. Supply Div., Ord. Dept., Feb.—Apr. '18. A. E. F., Apr.—Aug. '18. U. S., Aug. '18—to date (Aug. '19).
- SOLOMON, J. I. (VI) Capt., Q. M. C., Cons. Div., 20 Apr. '18—19 Aug. '19.
- WALKER, G. I. (I) Capt., Q. M. C., Cons. Div., 12 Sept., '18.
- WHITAKER, S. E. (VI) Maj., Ord. Corps. In Methods and Organization Sect., Control Bu., engaged with others in reorganization and development of Ord. Dept., until June '18; transferred to Progress Sect., Control Bu., office of Chief of Ord., Washington, D. C., until honorably discharged, 4 Jan. '19. See Civilian Record.
- WILLIAMS, F. P., Lt.-Col., M. C. Maj., M. R. C., 9 Mch. '18; Lt.-Col., M. C., 17 Feb. '19. A. E. F., 7 Sept. '17—2 May '19; 26th Div., First Corps Schools, A. S., Mesves Hospital Center and 35th Div.
- YORKE, G. M. (VI) Maj., Sig. C. Attached to office of Chief Signal Officer, assisted in securing and training men for special technical Sig. C. work in France; assisted in problems of maintaining cable communication between Europe and U. S.; assisted on special communication problems in U. S.

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- CHAFFEE, D. C. (IV) Sec. Y. M. C. A., A. E. F., 1 Jan. '18—20 June '19.
- HOLDEN, B. E. (IV) Maj., Amer. Red Cross. Capt., Amer. Red Cross and Chief of Cons., Southern France, Aug. '18—Feb. '19; Maj. and Chief of Cons., France, Feb.—1 July '19; appointed Chief of Construction of Hospitals, Prague, Czecho-Slovakia, July '19.
- LOWELL, GUY (IV) Maj., Amer. Red Cross. Deputy Commissioner in Italy, Nov. '17; Director, Dept. Military Affairs in Italy, Dec. '17—Jan. '19. Italian Decoration. (Page 153.)

TECHNOLOGY'S WAR RECORD

- OBBER, R. H. (I) Capt., Engrs.** Engr. Off. Tr. Sch., 17 Aug. '18; 2d Engr. Tr. Regt., 28 Oct. '18; 5th Regt. Engrs., 1 May '19; in command, Camp Hq. Detachment, in charge of water supply and Highway Vocational Schools, Camp Humphreys, Va., 21 July '19.
- PRESCOTT, S. C. (V) Maj., Sn. C.** Detailed to Surgeon General's Office, Sect. of Food and Nutrition, 8 Nov. '17; assigned to investigation work, instruction of nutrition officers and inspectors, and inspection service. (Page 274.)
- ROGERS, J. A. (IV) Ensign, U. S. N. R. F.** C. B. M., 4 Apr. '17; Ensign, 2 Jan. '18. C. O., Patrol Boat, Anton Dornin (Carnegie Research Ship); C. O., Naval Port Guard, Key West, Fla., 15 Jan.—11 Nov. '18.
- STEVENS, J. C. (XI) Capt., F. A.** 2d Lt., 1st Troop, Philadelphia City Cav., 15 July '17; Capt., Troop K, 1st Pa. Cav., 28 July; transferred 10th F. A., 28th Div., 22 Dec. '17. A. E. F., 30 Apr.—10 Dec. '18. Aisne-Marne Offensive (Fismes); Oise-Aisne Offensive; Meuse-Argonne Offensive. Disch. 26 May '19.
- WEIL, ISAAC (II) Maj., Ord. Corps.** Capt., Ord. Corps., 4 Oct. '17; Maj., 25 July '18. Production Div., Ord. Dept., '17; Ex. Officer, Claim Bd., Ord. Dept., 6 Dec. '18.
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- ABBOTT, L. A. (II) Capt., Ord. Corps.** Carriage Sect., Production Div., Ord. Dept. (later becoming Credit Sect., Procurement Div., Cost Estimating Branch) 1 Feb. '18; Chief Statistician, Ex. Sect., 19 Feb. '19; Salvage Bd., Ord. Dept., 16 Aug. '19.
- AMES, AZEL (I) Maj., C. A. C.** Served with 61st, 75th and 41st Regts., C. A. C., 15 July '17—17 Jan. '19.
- AULTMAN, D. E. (VI) Brig.-Gen. (T) U. S. A.** Col. F. A., 15 May '17; Brig.-Gen. (T.) 12 Apr. '18—31 June '19. A. E. F., 22 Sept. '17—20 June '19; C. O., 5th F. A.; Commanding General, 51st F. A. Brig.; Chief of Arty., 5th Corps, 2d and 3d Army. Toul Sector; Montdidier Sector; Champagne-Marne Defensive; Aisne-Marne Offensive; St. Mihiel Offensive; Meuse-Argonne Offensive. Distinguished Service Medal; Croix de Guerre with three Palms; Commander of the Legion of Honor. (Pages 138 and 197.)
- BOEDEKER, JOHN (VI) Capt., Coast Guard.** Coast Guard Hq., Washington, D. C.
- BURKHALTER, DENISE (II) Capt., Engrs.** A. E. F., July '17—Nov. '18; 17th Engrs.; Engr. Purchasing Officer, Base No. 1.
- CHAPMAN, E. M. 1st Lt., C. W. S., 4 Oct. '18.** Asst. Safety Engr., Plant Inspector and Safety Engr., American University Experiment Station, Washington, D. C., Oct. '18—7 June '19.
- CHURCHILL, P. M. (I) Maj., Engrs.** Capt., Engr. O. R. C., 8 May '17; Maj., 15 Aug. '17. Commanded 2d Bn. 304th Engrs., 79th Div., 27 Aug. '17—Commanded 538th Engrs. Service Bn., 16 May '18. A. E. F., 26 Aug. '18—16 June '19; T. C., 14 Jan.—21 May '19.
- CLAFLIN, W. B. (IV) Capt., Engrs.** Entered Service, 13 May '17; 14th Engrs., 39th Div.; transferred to Div. Hq. as acting Asst. Chief of Staff, G-2, 18 Jan. '18. A. E. F., 27 Aug. '18—3 Jan. '19.
- DEAN, A. D. (VI) Maj., Sn. C.**
- DENSON, H. C.,** Coast and Geodetic Survey, Washington, D. C., reported Capt., U. S. N.
- FARQUHAR, R. D. (IV) 1st Lt., Amer. Red Cross.** Relief work in Rome and towns and cities of North Italy, principally in Belluno (on the upper Piave) and in Bolzano (Botzen of upper Trentino) and in Trento, 17 Aug. '18—Apr. '19. Italian War Cross. (Page 152.)
- FITTS, H. G. (III) Lt.-Col., F. A. R. C.** In Service, '16; Capt. F. A., Aug. '17; Maj., Apr. '18; Lt.-Col., F. A. R. C., 1st Off. Tr. Camp, Plattsburg, N.Y., May 17; 2d war class, School of Fire, Ft. Sill, Okla. A. E. F., twelve months; School of Fire for F. A., Camp de Souge; commanded Btry., F. 304th F. A., 77th Div.; commanded 302d Trench Mortar Btry.; commanded 1st, 2d and 3d Battalions, 206th F. A.; attached 12th French Army, five weeks. Aisne-Marne Offensive (Château-Thierry to the Vesle); Oise-Aisne Offensive (Vesle to Aisne); Luneville-Baccarat Sector, Vosges Mt.; Meuse-Argonne Offensive (St. Ménéhould to Sedan).
- GAY, C. M., Capt., Engrs.** General Engr. Depot, Washington, D. C., 22 Nov. '17; Ord. Dept., Washington, D. C. 31 Aug. '18—3 Jan. '19.
- GREGORY, J. H. (I) Capt., Sn. C., 25 Oct.—20 Dec. '18.**
- HODGE, BENJAMIN (III) Maj., Amer. Red Cross.** Hosp. Representative, Camp Hosp. 33, near Brest, Aug. '18; Capt., and Director of Home and Hosp. Service; Maj., and Director, Bu. of Requirements, Berlin Comm. of the American Red Cross attached to Allied Comm. for the Repatriation of Russian Prisoners of War, Hq., Berlin, Germany, Feb. '19. Returned to U. S. A., July '19.
- KEMBLE, P. H. (XIII) Lt., U. S. N. R. F.** Production Officer, First Naval Dist., 9 Apr. '18. See Civilian Record.
- KOTZSCHMAR, HERMANN, JR. (II) Capt., Engrs. (rank Lt. Comdr.), U. S. Coast Guard (formerly U. S. Revenue-Cutter Service), U. S. N.** 1st Lt. of Engrs.; Capt. of Engrs., 1 July '18. Patrolled West Gulf of Mexico, Apr. '17—June '18; off-shore patrol of North Atlantic, June—Nov. '18.
- LORING, E. J. (IV) Capt., Ord. Dept.** Drop Bomb Unit, Trench Warfare Sect. (later Aircraft Armament Div.), Engr. Div., Ord. Dept., Washington, D. C., 8 Jan. '18; in charge Bomb Sight Unit, Sect. '18. Sub-assignment to Bu. of Mines, 8 Jan. '18—1 May '18. Disch. 13 June '19. See Civilian Record.
- MESERVE, C. A. (V) Maj., C. A. C.** Entered Service 14 May '17. A. E. F., 21 Apr.—10 Nov. '18; 60th Arty.-St. Mihiel Offensive; Meuse-Argonne Offensive.

REGISTER OF MILITARY RECORDS

- OWEN, ALLISON (IV) Col., F. A. Maj., 19 June '16; Lt.-Col., 12 July '17; Col. 4 Aug. '17. In command of a regt., 5 Aug. '17; Brig. Field Off. Sch., Ft. Houston, Texas, Jan. '18; School of Fire, Ft. Sill, Okla., Feb.—Mch. '18. A. E. F., 3 Sept. '18—28 Mch. '19; in command of 141st F. A.; School of Instruction, F. A., Coetquidan, France. Disch., 18 May '19.
- PARMLEE, C. L. (I) (XI) Capt., Engr. R. C. until Dec. '17. See Civilian Record.
- RICE, W. J. (IX) Pvt., C. A. C. 41st Co., C. A. C., Ft. Worden, 28 Oct.—21 Dec. '18.
- RICHARDSON, W. S. (IV) Capt., Amer. Red Cross, with Red Cross Comm. to Italy, Apr. '18.
- ROBINS, W. P. (IV) Capt., attached General Staff. Pvt., Off. Tr. Camp., 10 May '17; 1st Lt., 15 Aug. '17; Capt., 18 July '18. 1st Off. Tr. Camp, Ft. Niagara, N. Y., 10 May '17; in charge of statistical and personnel work, Camp Meade, Md.; transferred to intelligence duty, Washington, D. C., 8 Jan. '18; in charge of re-employment of discharged soldiers in western Pa., Office of Sec. of War, after armistice. Disch., 28 July '19.
- SHEAFE, H. J. (III) Capt., C. W. S. Capt., Engrs. U. S. R., June '17; transferred to Gas Service, 1 Mch. '18. Ft. Leavenworth, Kan., 1 Sept. '17; 309th Engrs., Camp Taylor, Ky., Nov. '17. A. E. F., 24 Jan. '18; with British Army in Belgium, 15 Apr.—15 May '18; Chief Gas Officer, 82d Div., 1 June '18. Toul Sector, July—Aug. '18; St. Mihiel Offensive; Meuse-Argonne Offensive.
- STORK, W. B. (II) Lt., U. S. N. Machinist, 2 cl., 22 Apr. '97; Warrant Machinist, 1 Nov. '01; Chief Machinist, 3 Mch. '09; Ensign, 1 July '17; Lt. (j. g.), 15 Oct. '17; Lt., 1 July '18. Member, Joint Merchant Vessel Bd., First Naval Dist., and Asst. to Dist. Supervisor, Naval Overseas Transportation Service, First Naval Dist.
- STURGIS, RUSSELL (X) Capt., Sn. C. Entered Service, 12 Feb. '18; Med. Off. Tr. Camp. Camp Greenleaf, Ga., 11 Mch.—17 June '18; C. O., School for Cooks and Bakers, Camp Greenleaf, Ga., 17 June—31 July '18; Member, Nutritional Survey Bd., Camp Sherman, Ohio, 1 Aug.—30 Aug. '18; Nutrition Officer, Camp Taylor, Ky., 1 Sept. '18—10 Oct. '19; Sn. Engr. and Asst. Sn. Inspector, Camp Taylor, Ky., 1 Sept. '18—1 Feb. '19.
- TILLINGHAST, C. F. (II) Col., C. A. C. Entered Service, 25 July '17; Comdr. Ft. Wetherill, R. I., 7 Aug.; Commanding Cantonment Guard, Camp Devens, Mass., 28 Aug.; Ft. Comdr., Ft. Greble, R. I., 15 Oct. '17—1 Jan. '18 and 1 Mch. '18—31 Dec. '18; detached Service Ft. Monroe, Va., 1 Jan. '18—28 Feb. '18; Ft. Comdr., Ft. Adams, R. I., 1 Jan. '15—15 Jan. '19.
- *WATERBURY, C. D. See Roll of Honor (page 119).
- WHITESIDE, G. S. (V) Asst. Sur., M. R. C., U. S. N.
- WIGGIN, T. H. (I) Lt.-Col., Engrs. Capt., 14 May '17; Maj., 10 July '18; Lt.-Col., 7 Apr. '19. A. E. F., July '17—7 June '19. Citation from G. H. C. (Page 218.)
- WITHINGTON, P. H., Maj., A. S. A. E. F.; Hq. Aviation Sect., Sig. C., Feb. '18; Night Bombardment Sect., A. S., Jan. '19.
- WOLFE, J. C. (II) Capt., Engrs. Entered Service, Feb. '18. A. E. F., 29 June '18—Jan. '19; 2d Corps School, Chatillon-sur-Seine, Aug. '18; 104th Engrs.; 116th Engrs., Angers, Nov. '18. Meuse-Argonne Offensive. Disch., 6 Mch. '19.

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- ANDERSON, W. P. (III) Capt., Engrs. Entered Service, 26 Sept. '17. A. E. F., 26 Jan. '18—17 Feb. '19. Representative of Corps of Engrs. with Salvage Service, 5 Feb. '18; duty with G-1, General Staff, G. H. Q. assigned to Motor Dispatch Service, 10 May '18; Finance and Disbursing Officer, Engr. Corps, Base Sect. No. 3, S. O. S., 5 Oct. '18. Disch., 11 Apr. '19.
- BAILEY, T. W. (I), Capt., Engrs. A. E. F., Dec. '17—Oct. '18; 101st Engrs., 26th Div.
- BAKENHUS, R. E., (I) Capt., C. E. C., U. S. N. Project Mgr., Bu. of Yards and Docks, U. S. Naval Armor Plant, Charleston, W. Va.; Mgr., Shipyard Plants Div., U. S. Shipping Bd., Emergency Fleet Corp.; in direct charge of dry dock and marine railway building program; Asst. Chief of Bu. of Yards and Docks.
- BATES, D. M. (X) Maj., Ord. Corps. Student Officer, Watervliet Arsenal and Frankford Arsenal, 15 Oct. '17; Supply Div., Ord. Dept., 4 Nov. '17; Asst. to Officer in Charge, Supervision Sect., Office of Chief of Ord., 17 Jan. '18; in Purchase, Storage and Traffic Div., Purchase and Supply Branch, General Staff, 5 June; Student Officer, Ord., Depot., Camp Meade, Md., 19 July; Ord. Officer in command Ord. Depot, Camp Lee, Va., 8 Aug.—5 Oct. '18.
- CLARKE, R. C. (IX) 1st Lt., Inf. Entered Service, Aug. '17; 1st Lt., Cav., 10 May '18; transferred 156th Inf., 39th Div., Sept. '17. A. E. F., Aug. '18—20 May '19; 354th Inf., 89th Div., Sept. '18. St. Mihiel Offensive; Meuse-Argonne Offensive; Army of Occupation.
- CLIFFORD, W. H. (V) (IX) Maj., Inf. Maj., Marine Corps, 2 May '17; transferred Inf., 15 Sept. '17. A. E. F., 8 June—15 Dec. '18; 317th Inf., East of Hebuterne, Somme, Aug. '18. Meuse-Argonne Offensive.
- CROCKER, C. I. (I) Capt., Engrs. C. O., Co. A, 3d Engr. Tr. Regt., Camp Humphreys, Va., 16 July—4 Dec. '18.
- CUMMINGS, C. K. (IV) Lt., U. S. N. Ensign, 4 Apr. '18; Lt. (j. g.), Feb. '18; Lt., Jan. '19. Asst. Navigator and Communication Officer, U. S. S. Mount Vernon for two years; torpedoed by German submarine off coast of France, 5 Sept. '18. (Page 232.)
- FLOOD, R. D. (IX) Maj., Red Cross. Entered Service, 9 Nov. '18; Transport Service, U. S. Transport Matsonia; Asst. Field Director, Home Service Dept., Camp Grant, Rockford, Ill.; Ward Service, Debarkation Camp No. 2, Hoboken, N. J.; Officer in Charge, Red Cross House, Brooklyn Navy Yard.
- GUPTILL, F. E. (VI) Capt., Engrs. Entered Service, 26 Jan. '18; instrumental in organizing the 34th Engrs., at Ft. Harrison, Ind., June—Aug. '18. A. E. F., Aug. '18—Aug. '19, Ex. Officer of Shops and Salvage, Gievres, France, Sept. '18—Jan. '19.

TECHNOLOGY'S WAR RECORD

- HARDY, R. S. (VI) Maj., Engrs. Capt., 10 July '17; active duty, 2 Sept. '17; Maj., 31 Oct. '18. Engr. Tr. Camp, Ft. Leavenworth, Kan., 2 Sept. '17; 20th Engrs., 10 Dec. '17; Office of Chief of Engrs., 6 Jan. '18—15 Apr. '19; assigned as Power Adm. of Western New York increasing production of existing power plants and allotting necessary power to essential industries.
- HASELTINE, W. E. (X) Maj., U. S. A., unassigned. Capt., 5 May '18; Maj., 4 Aug. '18. Statistics Branch General Staff, S. O. S., 7 Oct. '18—1 Aug. '19.
- HOWLAND, STANLEY (IX) Capt., Adjutant General's Dept. Hq., Central Dept., Chicago, Ill., 21 Aug. '18—21 Oct. '19.
- HYDE, C. G. (XI) Maj., Sn. C. Capt., 11 June '18; Maj., 24 Oct. '18. Served as Camp Sanitary Engr., Camp Meade, Md., 5 Aug.—22 Nov. '18; served in Div. of Sanitation, Surgeon General's Office, War Dept., 23 Nov. '18—12 June '19; Officer in Charge, Sanitary Engr. Sect. of Sn. C., 15 Feb. '19. See Civilian Record.
- MAYO, W. J. (II) Maj., Inf. 103d Inf., 26th Div., 13 Apr. '17. A. E. F., 25 Sept. '17—21 Dec. '18. Provost Marshal, Base Sect. No. 1, 27 May; Staff duty, Winchester, Eng., 1 July '17; Camp Comdr., U. S. Embarkation Camp, Southampton, Eng., 6 Sept. Aberville and Pinon Woods.
- MELLUSH, J. G. (IX) Capt., U. S. Public Health Service, Div. Industrial Hygiene and Medicine, 11 Jan. '19—24 July '19. See Civilian Record.
- MORRIS, CHARLES, Pay Inspector, U. S. N. U.S.S. Washington; Supply Officer, Navy Yard, New York City.
- NORRIS, REGINALD (VI) 1st Lt. Inf. 166th Depot Brig., Camp Lewis, Wash.; Co. F, 363d Inf. Amer. Mission, Bu. Interallié, Paris, in Dec. '18.
- RAWSON, H. D. (VI) Lt.-Col., Cons. Div., Q. M. C. Maj., 21 Mch. '18; Lt.-Col., 3 June '19. In charge of construction work, Aberdeen Proving Grounds; Cons. D. M., Lakehurst Gas Proving Grounds and Gas Training School, Lakehurst, N. J.; Supervising Cons. Q. M., located at Washington, D. C.; Member, Claims Bd. War Dept.
- ROCKWELL, J. A., JR. (VII) Maj. M. C. Commissioned, 18 Aug. '17; Camp Dix, N. J., 6 Apr. '18. A. E. F., July '18—7 Apr. '19; Base Hosp. No. 44, at Pougues les Eaux.
- RUSSELL, A. L. (IX) Maj., C. W. S. Capt., 20 Aug. '18; Maj., 13 Mch. '19. A. E. F., 31 Aug. '18—25 Apr. '19; 35th Div. Sommevie Sector, 18 Oct.—6 Nov. '18.
- SHERIDAN, H. H. K., Maj., Corps. Engr. Div., Motor Equipment Sect.; C. O., Jersey City Engr. Station.
- SMYSER, C. J. (V) Maj. M. C. Capt., 21 Jan. '18; Maj., 21 May '19. Camp Greenleaf; Embarkation Hosp., Camp Stuart, Newport News, Va.; Surgeon of Port, Newport News, Va.; Chief of Medical Service, Debarkation Hosp., No. 51, until 1 Apr. '19.
- SMYSER, J. S. (II) Capt., Ord. Corps, 13 Feb. '18. Watervliet Arsenal, 7 Mch.—15 Sept. '18. A. E. F., Sept. '18—Aug. '19; Electrical Div., Ord. Repair Shops, Mehun-sur-Yevre, 16 Oct. '18—1 Mch. '19; Field Center Officer, 2d Army, Apremont, 4 Mch.—15 May '19; 3d Army, Coblenz, Germany, 2d in Command at Ammunition Depot No. 351; in command of demolition pit at Bassenheim and Ammunition Depot No. 352 at Neuwied, 20 May—11 Aug. '19. Wounded and gassed, St. Agnant.
- STAMP, C. E. (VI) Capt., Ord. Corps. Small Arms Production, 17 Jan. '18; Asst. Chief, Crane Sect., War Industries Bd., 6 May '18.
- WALL, W. G. (VI) Lt.-Col., Ord. Corps. Maj., 18 June '17; Lt.-Col., 1 June '18. Service in U. S., 18 June '17—1 Feb. '19, except five months overseas. Ranking Officer, Bd. for Caterpillar Gun Mounts; with British and French Armies studying subject of motorization of artillery for five months. With British Army in German Drive, Mch. and Apr. '18. (Page 260.)

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- ADAMS, Z. B. (IX) Maj., M. C. Capt., 30 June '17; Maj., 1 Oct. '19. A. E. F., 14 July '17—1 Jan. '19; Base Hosp. No. 6; C. C. S. No. 48, B. E. F.; 26th Div. and 41st Div., A. E. F.; Base Hosp. No. 114, A. E. F.
- BACON, J. F. (IV) Capt., Engrs.
- BROWN, W. D. (VI) Capt., A. S. A. Capt., Aviation Sect., Sig. R. C., 31 Oct. '17; transferred to A. S. A. Entered Service, 31 Oct. '17; Post Adj., Taylor Field, Ala., 20 Apr. '18; Ex-Officer and 2d in command, 2 Aug. '18; Adj., 344th Handley Page Service Sq., 13 Sept. '18; Acting Commanding Officer, Air Service Depot, Garden City, N. Y., until 19 Dec. '18.
- EWEN, M. F. (IV) Capt., Ord. Corps. 1st Prov. Regt., Camp Hancock, Augusta, Ga.; American Ord. Base Depot in France.
- FIELD, F. C. (VI) Maj., Ord. Corps. at Remington Arms Co., Eddystone, Pa.
- FULLER, G. A. (VI) 1st Lt., Ord. Corps. A. E. F.
- GREENE, H. C., Maj., Amer. Red Cross. Entered Service 10 Sept. '17; Lt., Oct. '17; Capt., Apr. '18; Maj., July '19. A. E. F.; Noyon, France, 10 Sept. '17; Compiègne, 25 Mch. '18; Senlis, 11 June; Compiègne, Sept.; Laon, 30 Dec. '18 to present date (28 Sept. '19). Médaille de Reconnaissance Française, Silver; Croix de Guerre; Gold Medal of the Union of Women of France, (French Red Cross); Silver Cross of the Society to Aid Military Wounded (Page 148).
- HEARD, H. R., Ensign, U. S. N. R. F. Sea., 11 Apr. '17; Ensign, Dec. '17. Eastern Yacht Club, Marblehead for ten days' training; assigned to Yacht Walay, 21 Apr. '17. U. S. Naval Hq., London, Eng., Jan. '18.
- HOWARD, S. L. (IX, XIII) Candidate, 10th Prov. Co., Off. Tr. Camp, 17 May '17—10 July '17.

REGISTER OF MILITARY RECORDS

- HOWLAND, J. H. (I) Maj., Q. M. C. Maj. Fire Prevention Branch, Operating Div., Q. M. C., 7 May '18. Disch., 1 Feb. '19.
- HUNNEWELL, F. A. (XIII) Constructor with rank of Capt., U. S. Coast Guard, Navy Dept., Hq. U. S. Coast Guard, Washington, D. C. Entered Service '13.
- HUNT, H. B. (II) Col., Ord. Corps. Maj., Ord. R. C., 19 June '17; Lt. Col., (N. A.), Jan. '18; Col., Ord. Corps, U. S. A., Oct. '18. (Page 260).
- KENT, W. A. (I) Col., Inf. Lt.-Col. (N. A.), 5 Aug. '17; Col., 7 Aug. '18. Entered Service, 30 June '09; Inst. Asst. Personnel Commandant and Director, Small Arms Dept., Infantry School of Arms, Ft. Sill, Okla., Aug. '17; commanding two battalions, 162d Depot Brig., 24 Aug. '17; Asst. Commandant, 87th Div., '18; commanding Camp Pike, Ark., 8 Nov. '17; Inst., Brig. and Field Off. Sch., Ft. Houston, Texas, 7 Feb. '18; commanding Bn., 2d Repl. Regt., Camp Gordon, Ga., 23 Apr. '18; commanding 4th Repl. Regt., 12 May '18; Senior Inst., Cent. Off. Tr. Sch., Camp Gordon, Ga., 14 June '18; commanding 810th Pioneer Inf., 27 Aug.; commanding 4th Recruit Camp, Camp Greene, N. C., 22 Dec. '18; Ex. Officer, Camp Greene, 16 Jan. '19; Recruiting Officer, Knoxville, Tenn., 1 Mch. '19.
- MANSON, E. S., Jr. (VIII) Capt., Adj. Gen. Dept. Pvt., Off. Tr. Camp, 16 May '17; 1st Lt., Adj. Gen. Dept., 15 Aug. '17; Capt., 8 Oct. '18. Off. Tr. Camp, Ft. Harrison, Ind., 16 May '17; Camp Sherman, Ohio, 29 Aug.; Insurance Officer, Camp Sherman, May '18—Sept. '19.
- MASON, E. P. (II) Comdr., Naval Auxiliary Reserve. Lt., 9 Apr. '17; Lt. Comdr., 31 Aug. '18; Comdr., 13 May '19. Ex. Officer, 2d Dist. Sect., Joint Merchant Vessel Bd., Newport, R. I.; Repair Officer, Naval Auxiliaries, N. Y., 4 Nov. '17; Material Officer, Naval Overseas Transportation Service, 3d Naval Dist., 8 Jan. '18; on detached duty at Rotterdam, Holland, in connection with the return of Dutch vessels taken over by our Govt. during the War. 16 May '1—Oct. '9.
- NORRIS, A. P. (V) Contract Surgeon, Harvard R. O. T. C. and S. A. T. C., July—Dec. '18.
- PARSONS, A. L. (I) Comdr., U. S. N. Entered Service, Mch. '03. Asst. Chief, Bu. Yards and Docks; Acting Chief for short period.
- RHODES, W. S. (XII) Capt., Q. M. C. 1st Lt., Engr. O. R. C., 30 Apr. '17; Capt., Q. M. C. (N. A.) 19 Mch. '18. 1st Off. Tr. Camp, Plattsburg, N. Y., 15 May '17; transferred to Q. M. C. Cantonment Div., Camp Wheeler, Ga., 25 July; Asst. to Cons. Q. M., Pig Point Ord. Depot Portsmouth, Va., 30 Dec.; Camp Hosp. No. 3, Rahway, N. J., 5 Apr. '18; Property Officer, Camp Custer, Mich., 23 May; Asst. to Cons. Q. M., U. S. Military Academy, West Point, N. Y., 20 Sept.; Asst. to Chief Cons. Q. M., Washington, D. C., 5 Nov. '18—3 June '19.
- SMITH, H. W. (II) with Ambulance Service, Norton-Harjes Unit, Amer. Red Cross in France, Dec. '16—May '17. See Civilian Record.
- SPEAR, W. E. (XI) Maj., Q. M. C. Maj., Q. M. C., Cons. Div., 26 Oct. '17; Utilities Officer, Camp Upton, N. Y., 26 Oct. '17; Cons. Q. M., Camp Upton, 12 Nov.; Consulting Engr., Water Supply and Sewerage Works, Camp Upton, 21 June—26 Oct. '18.
- SWEETSER, C. H. (I) Capt., Engrs. 41st Engrs., 17 Jan. '18; 43d Engrs. Camp, American University, 25 Feb. A. E. F., 30 May '18—20 June '19; detached service, 20th Engrs. (Forestry), 5 July; Wood Supply Officer, in charge station at Liffol-le-Grand, Vosges, 5 Aug.; Road Dept., Base Sect. No. 1, St. Nazaire, 1 Feb. '19; Supt. of Roads, St. Nazaire, 21 Feb. '19.
- WOODYATT, ERNEST, (IV) Capt., Q. M. C., Cons. Div., 8 Nov. '18. Stationed at Washington and Anacostia; special duty in New York, Pittsburgh and Chicago. Disch. 4 Mch. '19.

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- ADAMS, B. A. (II) Maj., General Staff. 1st Lt., Mass. Inf., 25 Mch. '17; Mass. Inf. merged in 104th U. S. Inf. Sept; Capt. (N. A.), 7 June; Maj., Inf., attached to General Staff, 22 Feb. '19. A. E. F., 3 Oct. '17—9 Aug. '19; detached duty with Base Censor, 27 Nov. '17; Base Censor, 6 June '18. Army Citation from Commander-in-Chief, A. E. F.
- ALLYN, R. S. (II) Maj. C. A. C. Adj., 9th New York (N. G.) C. A., '14; Maj., C. A. C., '16. Recruiting Officer, Ft. Hancock, N. J., 15 July '17; Pres., General Court Martial; Arty. School, Ft. Monroe, Va., Dec. '17; C. O., 3d Bn., 57th Regt. C. A., Feb. '18. A. E. F., 10 May—29 Nov., '18; trained and equipped at Arveyres; target practice at deSouge; Summary and Special Court details; with Btry. E and Btry. F., South of Verdun, Sept. Meuse-Argonne Offensive. at Montzeville, Avocourt, Montfaucon, Epinonville and Romagne, 12 Sept.—11 Nov. '18.
- AYRES, E. F. (II) Capt., Engrs. Commissioned 28 Dec. '17. Off. Tr. Camp, Camp Lee, Va., 5 Jan. '18; Office of Cons. Q. M., Washington, D. C., 26 Mch.; Property and Disbursing Officer and Asst. Cons. Q. M., Camp Meade, Md., 3 Apr.; C. O., Co. D., 2d Engr. Tr. Regt., Camp Humphreys, Va., 19 Aug.; Inst. in Emergency Bridges, attached to 3d Engr. Tr. Regt., 28 Aug.; Officer in Charge, Food Exchange, 11 Dec.; Officer in Charge, Consolidated Exchanges, 14 Feb. '19; Asst. Prof., Military Science and Tactics, in charge Engr. Unit, R. T. O. C., University of Alabama, Tuscaloosa, Ala., 4 Apr.; Asst. Prof., Military Science Tactics, Oregon Agricultural College, Corvallis, Ore.
- AYRES, M. V. (VI) Maj., Statistics Bu., General Staff, 25 May '18.
- BURNHAM, GEORGE, (IV) Officer Candidate, Cent. Off. Tr. Sch., Camp Taylor, Ky., Oct. '18. Disch. for physical disability, Nov. '18. See Civilian Record.

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- BYAM, L. H. (I) Maj., Engrs. Capt., Engr. O. R. C., 16 Apr. '18; Maj., Engrs., 31 Oct. '18. 55th Engrs., Camp Custer, Mich. A. E. F., 30 June '18—20 Apr. '19; in charge of construction of dump yard and steel warehouses for Ry. at Gievres, France; 128 Engrs., 31 Oct. '18; Engr. Officer, in charge construction of steel hangars, barracks, and water supply of 3d Aviation Instruction Center, Issoudun.
- DAWES, F. B. (VI) Capt. Engrs. Asst. Adj., 20th Engrs.
- DEGLOYER, R. S. (IV) Capt., Cons. Div., Q. M. C., 26 July '18.
- EMERY, E. C. (I, II) Capt., Engrs. Committed 6 May '18. Eng. Res. Off. Tr. Camp, Camp Lee, Va.; Washington Barracks, D. C., 1st Repl. Regt., 29 July '18; Port of Embarkation, Hoboken, N. J., 2 Nov.; Camp Mills, N. Y., 210th Engrs., 4 Nov.; Camp Humphreys, Va., 7 Jan. '19.
- FARLEY, J. W., Maj., Inf. 303d Inf., 14 May '17. A. E. F. 8 July '18—15 Feb. '19; Div. Hq., 76th Div.; Casual assigned for course at Army General Staff College, 1 Oct. '18.
- FLEMING, C. E. (II) 3d Btry., Off. Tr. Camp, Ft. Oglethorpe, Ga.
- GARDNER, L. D. (IX) Maj., A. S. A. 1st Lt., Aviation Sect., Sig. R. C., 22 Sept. '17; Capt., 15 Aug. '17; Maj. A. S. A., 25 Sept. '18. Officer in Charge, 2d Liberty Loan, Kelly Field, Texas; organized during service, 89 Aero Squadrons; C. O., Mobilization Camp, Waco, Texas; Member, Control Bd., Dept. of Military Aeronautics, Washington, D. C. (Pages 4 and 27.)
- GOLDSMITH, CLARENCE, (II) Maj., Q. M. C. Engr. Div., Cons. Div., Q. M. D., 6 Apr. '18; in charge of Fire Prevention Engr. as Advisory Engr. and Principal Asst. Engr. to the Advisory Engr. on the water supply. See Civilian Record. (Page 317.)
- HARWOOD, B., reported Lt.
- HAWES, A. G. (VI) Capt. Ord. Corps. Army Inspector of Ordnance at Indianapolis, Ind.
- HAYDEN, F. L. (X) reported Capt., C. W. S.
- HOUSE, J. H. (IV) Maj., Engrs. Capt., Engrs., 15 Aug. '17; Maj. 10 Dec. '17. C. O., 523d Engrs. A. E. F., 10 July '18—July '19; Product and Shipment Officer, Forestry Work; Officer in Charge of cons. of German Officers' Prison Camp, Gievres, Oct.; Chief Liaison Officer, Greek Mission, Feb. '19; transferred to Courier Service, and sent to Constantinople, Jerusalem and Athens.
- JONES, H. W. (VII) Col., M. C. Entered Service, 22 Sept. '05; Maj., at commencement of war; Lt.-Col., 1 Jan. '18; Col., 7 Apr. '19. Sec. of the Faculty, Army Medical School, Washington, D. C.; Organized and commanded Base Hosp. No. 114. A. E. F., 18 June '18—29 June '19; in command of Beau Desert Hosp. Center, Gironde, France, 6 July '18—27 June '19. Chevalier of the Legion of Honor. (Pages 145 and 216.)
- JONES, S. F. (VII) Maj., M. C. 1st Lt., M. C., 6 Apr. '17; Capt., Aug. '17; Maj., 24 Aug. '18. Recruiting Officer, Ft. Logan, Colo., 6 Apr. '17. A. E. F., Sept. '17; Operating Surgeon, Amer. Red Cross Military Hosp. No. 1, Neuilly-sur-Seine. Operating Surgeon and Chief of Orthopedic Service, U. S. Army General Hosp. No. 12, Biltmore, N. C., until 13 Jan. '19.
- LACY, ROBERT (I) Maj. Engr. R. C. Pvt., Engr. Off. Tr. Sch., 6 Nov. '18; Maj., Engr. R. C., 15 Feb. '19. See Civilian Record.
- LAMBERT, J. H. (VII) Capt., M. C., Nov. '17. Base Hosp. No. 7, Boston City Hospital Unit. A. E. F., in charge X-Ray Dept., Base Hosp. No. 7, July '18—Apr. '19.
- MONTEITH, A. D. (I) Capt., Engrs., 10 Sept. '17. Camp Lee, Va., 5 Jan. '18; Personnel Adj., 28th Engrs., Apr. '18. A. E. F., 13 Sept. '18—10 July '19; with Sec. Engr., Base Sect. No. 5, Brest, France, 13 Sept. '18; 130th Engrs., Base Sect. No. 7, La Rochelle, 15 Jan. '19; Co C. 510th Engrs. (Colored), 8 May; left France, 28 May; appointed C. O. of troops on U. S. S. Arcadia, 2 June.
- OSGOOD, H. D. (XI) Capt. Engr. O. R. C.
- PERLEY, W. M. (V) Provisional Lt. Comdr., U. S. N. R. F. (4). Supt., Avery Chemical Co., Lowell, Mass., mfg. sulphuric acid and ammonia for explosives, iron liquor for khaki dyeing, lactic acid for tanneries and textile companies.
- PILLSBURY, G. B. (X) Col., Engrs. Entered Service, June '96; Col., 15 July '17. A. E. F., 7 Aug. '18—30 May '19; with 115th and 102d Engrs., 2d Corps. Somme Offensive, 25 Sept.—25 Oct.
- RICHARDSON, E. B. (VI) Lt.-Col., F. A. Enlisted in Btry. A, Mass. N. G., '05; Maj., F. A., 25 July '17; Lt.-Col., 30 July '18. A. E. F., 9 Sept. '17—25 Aug. '18; 25 F. A., 30 July '18. Chemin des Dames Sector, Mich. '18; Toul Sector, Apr.—June; Aisne-Marne offensive (Château-Thierry), July—3 Aug. Disch., 28 Jan. '19.
- RILEY, J. C. (II) Maj., A. S. Technical Sect., S. O. S., 26 Sept. '17. A. E. F., 20 Oct. '17—10 July '19.
- RITCHEE, E. W. (IV) Capt., Engrs. 4th Engr. Off. Tr. Camp, July '18; 153 Engrs.; 2d Engr. Tr. Regt.; 5th Engrs.; in charge Military Rys., Camp Humphreys, Va.; Bn. Adj.
- SHERMAN, E. C. (I) Comdr., C. E. C., U. S. N. R. F. Lt. Comdr., U. S. N. R. F., 11 Sept. '18; Comdr., 26 June '19. Office and Project Mgr., Bu. Yards and Docks, Navy Dept., Washington, D. C., 6 Apr. '17—10 Sept. '18.
- SKINNER, C. J. (I) Capt., Engrs. 147th Engrs., Ft. Harrison, Ind.
- SNELLING, HOWARD (I) 2d Lt., Q. M. C. Sec., Transportation Div., Y. M. C. A., A. E. F., 20 Dec. '17—5 Sept. '18; transferred Remount Det., Q. M. C., U. S. A., 5 Sept. '18; Asst. Remount Officer, 6th Corps, 1 Oct.; Remount Officer, 7th Div., 1 Dec.; returned to U. S., 5 Apr. '19.
- SNOW, F. W. (VII) Lt.-Col., M. C. 1st Lt., M. C., 27 June '17; Capt., 16 July; Maj., 28 Aug. '18; Lt.-Col., 2 May '19. In France with first Harvard Unit for service with the British Army; B. E. F., General Hosp.,

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- No. 4 16 Aug. '17; C. O. Camp Hosp. No. 12, A. E. F., 17 Apr. '18; C. O., Camp Hosp. No. 41, 15 Feb.—12 July 19. Army Citation. (Page 155.)
- STEVENS, G. P. (IV) Capt., Amer. Red Cross. A. E. F., July '17—Mch. '19. Member, Executive and Distributing Comms. of Amer. Relief Clearing House in Italy, and official representative of Amer. Red Cross, '15—'17. (Page 295.)
- SWASEY, A. L. (XIII) Comdr., U. S. N. R. F. Lt. Comdr., C. C. U. S. N. R. F., 2 Apr. '17; Comdr., 2 Aug. '19. Supt. Constructor, U. S. N. Hq., New York City; Bu. of Cons. and Repair, Navy Dept., designing 110-ft. submarine chasers; Member, Appraisal Bd. for Curtiss Engr. Corp.; designed twenty-five patrol boats for civilians for service in the war; Member, Sec. of Navy's Bd. of Appraisal for Merchant and Private Vessels; Member of the Commandeering Bd. for the President of the U. S.; Member of the Sec. of the Navy's Bd. of Review; Member of several minor bds. appointed by the Sec. of the Navy. (Pages 5 and 249.)
- TALLANT, ALICE W. (VIII) Aide Major, 1st. Cl. (corresponding to 1st. Lt.), Civilian Div. of the American Comm. for Devastated France, working with the French Army, Aug. '17; with Smith College Relief Unit in France; Director of Unit, Civilian Relief in the Departments of the Somme, near Nesle and Ham four and one-half months; returned to U. S., Feb. '18; returned to France with the American Comm. for Devastated France, May '18; aided in evacuating villages during the German Drive, May and early June; in Receiving Ward of the French Military Hosp. at Coulommiers, twenty miles from Château-Thierry, June and July; Medical service for civilians at Château-Thierry and sixty surrounding villages, later at Vic-sur-Aisne near Soissons. Croix de Guerre. (Pages 150 and 295.)
- WADSWORTH, G. R. (I) Maj., Aviation Sect., Sig. C. Entered Service, 23 Apr. '17; Capt., Aviation Sect., Sig. C., 30 June; Maj., 3 Oct. Ex. Officer for Maj. Souther, Washington, D. C., on problems connected with general aircraft program of the Army and supervision of the cons. of the Aviation Experimental Station, Langley Field, Hampton, Va.; in charge, Technical Research Sect., Langley Field, testing and passing upon foreign planes shipped to this station for special purposes, Aug. '17; by request of Chief of Bu. of Cons. and Repair, U. S. N., ordered to report to the Naval Aircraft Factory, Navy Yard, Philadelphia, as Chief Engr. of the factory, Oct.; ordered to Washington after armistice. Disch., 30 Dec. '18. (Pages 4 and 250.)
- WALLACE, R. B. (XIII) Maj., Amer. Red Cross, 25 Oct. '18. Balkan Comm., Amer. Red Cross, in charge of transportation, getting shipments through Trieste and Fiume for Serbia and shipments into Montenegro, Albania, Greece and Roumania. Returned to U. S. A., July '19.
- WALPOLE, N. C. (II) Maj., Ord. Corps, 28 Sept. '17. A. E. F., Commanding 8th Ord. Bn., Overseas Cannon Repair. (Page 263.)
- WEAVER, E. M. (II) Maj., Gen., C. A. C. Chief of C. A.; Member of War Council, War Dept.
- WINSLOW, C.-E. A. (VII) Maj., Amer. Red Cross, June '17; Mission to Russia, abroad, June—Oct. '17. Received medal for distinguished public service. See Civilian Record. (Page 289.)

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- ADAMS, H. H. (I) Col., Engrs. Lt.-Col., Engrs., 18 July '17; transferred to Ry. T. C., 11 Feb. '18; Col., 10 Oct. A. E. F., Aug. '17—Mch. '19; 12th Engrs., operating Light Railways with British 3d Army near St.-Quentin; in command of all American troops in railroad service in the Zone of the Armies and Representative of the Director-General of Transportation, A. E. F.; on the Staff of the Commander-in-Chief, Nov. Officer of the Legion of Honor. (Pages 142 and 213.)
- BENNINK, CARROLL (IV) Maj., Amer. Red Cross. 1st Lt., Amer. Red Cross, 10 Apr. '18; Capt., 12 Mch. '19; Maj., 10 July '19. Service in War Zone in France, 28 Apr. '18—27 July '19. Volunteered for Engr. C. but was not accepted. Medal from French Society, "Secours aux Blessés Militaires." (Page 293.)
- CLARK, J. K. (II) Chief Special Mechanic, U.S.N.R.F. Enlisted, U.S.N.R.F., 7 Apr. '17; M. M. 2 cl., 17 Sept.; C. M. M., 1 Nov.; Chief Special Mechanic, Oct. '18. U. S. Sub-Chaser No. 259; U. S. S. Bridgeport repairship with Destroyer Fleet. A. E. F., June '18—Apr. '19. Submarine attack on U. S. S. Bridgeport near Brest, France, 5 Aug. '18. (Page 275.)
- DREW, C. D. (I) Maj., Engrs. Candidate, Off. Tr. Camp, 13 May '17; Capt., Engrs., 6 June; Maj., 7 Apr. '19. A. E. F., 14 July '17—26 Apr. '19; 11th Engrs. (Ry.). Cambrai Offensive, 20-24 Nov. '17; Cambrai Defensive, 24 Nov.—27 Dec.; St. Mihiel Offensive, 14-16 Sept. '18; Toul Sector, 17 Sept.—9 Oct.; Meuse-Argonne Offensive, 9 Oct.—11 Nov. Cited by Commander-in-Chief for service in Meuse-Argonne; Military Cross (British).
- EMERSON, G. D., Capt., Q. M. C. Cons. Div., Q. M. D., 17 Oct. '18; Asst. Constructor, Army Supply Base, Boston, Mass.
- GASKILL, C. S. (II) Lt.-Col., Engrs. Maj., Engrs.; Lt.-Col., A. E. F., 7 Feb. '18—Apr. '19; 19th Engrs. (Ry.); in charge of Locomotive and Car-Repair Shops, Nevers, France. Distinguished Service Medal. (Pages 140 and 214.)
- GOODNOW, W. F. (I) 1st Lt., A. S., 18 June '18. 22d Cons. Co., A. S.
- HAMILTON, A. L. (III) Capt., Amer. Red Cross. Assoc. Director of Military Relief, Central Div., Amer. Red Cross, visiting Camps Custer, Grant and Dodge, Apr.—July '18; Red Cross Hq., Washington, D. C., July, A. E. F., Aug. '18—Jan. '19; outpost worker with 3d Div.; Capt., in charge of work with 1st Div., in the Argonne, Oct.—Nov. '18; Coblenz, Nov. '18—Jan. '19.
- HANNA, B. S. (I) Capt., M. C., 18 Oct. '18. Embarkation Hosp., Camp Stuart, Newport News, Va. See Civilian Record.

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- HASBROUCK, ROSS (I) Capt., Engrs., 20 July '18. 4th Engr. Off. Tr. Camp, Camps Lee and Humphreys, Va., 26 July '18; Hq. Engr. Troops, Camp Shelby, Miss., 9 Nov.—16 Dec. '18.
- HENDERSON, R. S. (I) Ambulance Driver, American Field Service. In France 25 June '17,—Dec. '18; Transport Militaire 526, Section Groupe American.
- HINMAN, W. H. (X) Maj., Ord. Corps. 1st Lt., Ord. Corps, 15 June '17; Capt., 8 Jan. '18; Maj., 25 July. Army Inspector of Ord., Remington Arms Union Metallic Cartridge Co., Bridgeport, Conn.
- HUBBARD, G. G., Lt., Royal Flying Corps. Ambulance Driver, American Field Service, '14—'15; Lt., Royal Flying Corps (British), summer '15; at Front, winter '15; Inspector of airplanes in England, spring '16; Inst. in rigging airplanes, Oxford University, Nov. '16.
- JACKSON, J. P. (IV) Capt., Engrs. Off. Tr. Camp, 27 Aug. '17; Capt., Engrs., 14 Sept. '17. Ft. Snelling, Minn., 27 Aug. '17; 129th Engrs. A. E. F., 11 Dec. '17—9 July '19; Hq., Paris, 1 Jan. '18; Engr. Officer in Charge of Construction, Angers Dist.; Supply Officer for Section Engr. Officer of Base Sect. No. 1, St. Nazaire.
- JOHNSON, A. A. (I) 1st Lt., Engr. Entered Service, Aug. '18. A. E. F., Sept. '18; 22d Engrs. (Ry.).
- LAIGHTON, P. DuB. (VII, IX) Ambulance Driver, Amer. Red Cross. Driver, American Field Service, 20 June '17—Nov. '17; joined Red Cross in Paris, Nov. '17, and went to the Balkans by lorries over Albanian Mountains via Santa Quaranta and Vodena, Greece to Salonica; from Salonica to Monastir, Serbia, and opened Red Cross Depot; under bombardment all winter '17 and 18 in Monastir; looked after refugees speaking nine languages; returned to U. S. A. on leave late summer '18. Armistice prevented return.
- LYNCH, G. E. (II) Capt., Engrs., 14 Sept. '17. Training Camp, 28 Dec. '17; 28th Engrs. (Quarry Unit), 21 Feb. '18; Office of Chief Engr., 22 July; 2d Engr. Tr. Regt., Camp Humphreys, 1 Oct.—14 Apr. '19.
- McCREA, A. W. (IV) 1st Lt., Engrs., 20 June '18. Civilian Draftsman with Engr. C., Sept., '17; entered Off. Tr. Camp, American University, Washington, D. C., 1 Oct. A. E. F., 26 Nov. '17—11 Mch. '19; assigned to Teaching Staff, Engr. School, Langres, as Chief Draftsman, 17 Dec. '17; school moved to Ft. de Monges, Mch. '18; assigned to Engr. Intelligence Sect., Chaumont, 1 Apr.; in charge Map Sect., Tours, 1 July; ordered to Is-sur-Tille, in charge of Bridge Yard, Advance Engr. Depot No. 1. Assigned to Office of Chief of Engrs. in charge of Fixed Bridges, Development Sect., U. S. A., 17 Mch. '19.
- *McDONALD, C. S. (IV). See Roll of Honor (pages 107 and 295).
- MORSE, H. L. (II, VI) Col., F. A. In regular service since '04; Maj., Ord. Corps, Apr. '17; Maj., F. A., 13 Aug.; Lt.-Col., 17 June '18; Col., 26 Oct. A. E. F., 12 June '18—10 June '19; with 324th Howitzer Regt.; Brig. Adj., and Chief of Staff, organized and instructed the Brigade Staff; commanded 323d F. A. in march to and across the Rhine. Meuse-Argonne Offensive, 20 Sept.—11 Nov.; Army of Occupation.
- NATHAN, A. F. (X) Maj., Inf., 21 May '17. 307th Inf., 77th Div.
- PALMER, WORTHINGTON (IV) 1st Lt., Sn. C., 8 Sept. '17. Worked as civilian on organization of Base Hosp. No. 33, 15 Apr.—Nov. '17; mobilized, Nov. A. E. F., May '18—20 Feb. '19, Portsmouth, England, with Base Hosp. No. 33, worked on plans and cons. of 2000-bed hosp.
- PARKER, W. E. (I) Lt. Comdr., U. S. N., 24 Sept. '17. Bu. of Navigation, U. S. Naval Observatory, Washington, D. C., in charge of Compass Office, designing, purchasing and distributing magnetic and gyroscopic compasses on war vessels and naval auxiliaries.
- PLIMPTON, ALBERT (II) Lt. (j.g.), U. S. N. R. F. Ensign, U. S. N. R. F., Apr. '18; Lt. (j.g.), Jan. '19. 3d Naval Dist., New York. A. E. F., Ex. Officer, U. S. S. Newark, Sq. No. 10, Mine Sweeping Div.
- PRAY, D. M. (V) Lt., U. S. N. R. F. Joined National Naval Volunteers, 6 Apr. '17; Lt., U. S. N. R. F. Recruiting duty at Leominster, Mass.; Training Camp, Hingham, Mass.; Watch Officer and later Personnel Officer, New York Receiving Ship, at Narrows, opposite Staten Island, New York Lower Harbor.
- RICHARDSON, J. H. (I) Capt., Engrs. Capt., Engr. O. R. C., 15 Aug. '17; later Capt., Engrs. Camp Belvoir and American University, Washington, D. C.; attached Co. A, 306th Engrs., Camp Jackson, S. C., 10 Dec. A. E. F., 20 Jan.—June '18; attended 2d Corps Schools and trained in Engr. School for Officers, the Tactical and the Weapon Schools. Returned to U. S. A. as Officer Inst.; 5th Tr. Regt., Camp Humphreys, Va.; in charge of the revision of the Engineer Field Manual and other engineer publications; Regt. Personnel Adj.; in command Co. F, 1st Engrs., training for A. E. F.; Office of Chief of Engrs., Washington, D. C., 9 July; Assigned to Sect. of Training and Disposition of engr., officers and troops. Disch., 29 Nov. '18.
- RIDDLE, H. H. (IV) Capt., Amer. Red Cross, 5 Sept. '17. Adm. Dept., Amer. Red Cross, Paris, France.
- ROBINSON, AVERY (IV) Capt., F. A. Pvt., Off. Tr. Camp, 27 Aug. '17; 2d Lt., 15 Dec. '17; 1st Lt., 31 Dec. '17; Capt., 23 Feb. '19. 2d Training Camp, 27 Aug. '17; 327th F. A., 15 Dec. '17. A. E. F., 7 Sept. '18—11 Mch. '19; transferred to 159th F. A. Brig. Hq., 4 Oct.; transferred to 3d F. A. Brig., 3d Div., 31 Oct. Meuse-Argonne Offensive; Army of Occupation. Mentioned in Divisional Orders.
- STEBBINS, R. W. (II) Pvt., F. A., '18. Ambulance Driver, American Field Service, Jan.—July '15. Attached to the 8th French Army in Flanders; helped handle first train load of French soldiers overcome by gas, Jan. '15; at the Front during 2d Battle of Ypres. Pvt., F. A., Camp Taylor, Ky., '18. Ambulance Squad cited in French Army Orders. (Page 285.)
- STONE, JACOB, JR. (IV) 1st Lt., Engrs., 2 Sept. '17. 33d Engrs. A. E. F., 13 July '18—July '19, Neufchateau (Vosges) in charge of eighty men, helped build M. T. C. Overhaul Park No. 3 and other construction work, 23 July '18; Beaune (Cote d'Or) and Bellevue, Paris, 16 Apr. '19.
- TAYLOR, BRAINERD (IX) Col., M. T. C. Entered Service, 2 Mch. '02; Capt., C. A. C., Apr. '17; Maj., 5 Aug.; Lt.-Col., 22 May '18. M. T. C., 7 Oct. '18. Hawaii, 7 Apr. '17. A. E. F., 1 Nov. '17—Feb. '19;

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- Chief of M. T. C., Adv. Sect., S. O. S., 10 Jan. '18. St. Mihiel Offensive; Meuse-Argonne Offensive. Distinguished Service Medal; Officer of the Legion of Honor. (Pages 141 and 214.)
- WALTON, J. H. (V) Maj., Engrs. Capt., Gas Defense Service, Sn. C., 13 Sept. '17; transferred to Engrs., 16 Apr. '18; Maj., 3 May. In charge of Training in Gas Defense, 13 Sept. '17. A. E. F., 9 July '18—9 Jan. '19; Chief Asst. Gas Officer, 1st Army, 20 Aug. '18.
- WATROUS, C. A. (IV) Lt.-Col., M. T. C. Maj., Cons. Div., Q. M. D., 5 Jan. '17; entered Service, 20 July; transferred to M. T. C., 1 Oct.; Lt.-Col., M. T. C., 23 Aug. '19. Asst. Cons. Q. M., Camp Dodge, Iowa, 20 July '17; C. O., 313th Supply Tn., 88th Div., Oct.; Sub Depot Q. M., Camp Eustis, Va., 27 July '18; ordered to France, Oct.; on transport 11 Nov.; C. O., M. T. Tr. Sch., Ft. Sheridan, Ill., 18 Dec.; C. O., Municipal Pier, District H, M. T. C., Chicago, Ill., Jan.—1 May '19'
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- BADLAM, STEPHEN (III) Maj., Inf. Capt., Inf., 26 July '17; Maj., 13 Feb. '19. 154th Depot Brig., 79th Div., Camp Meade, Md., 26 July '17—Jan. '18. A. E. F., 29 Jan. '18—1 Oct. '19; 40th Div.; 83d Div.; General Staff, 1st Army G-1 Sect. Meuse-Argonne Offensive, 26 Sept.—11 Nov. '18.
- BARTON, C. A., JR. (VI) Maj., Ord. Corps. Capt., Engrs., 15 May '17; Maj., Ord. Corps. Rock Island Arsenal, Apr. '18—Apr. '19.
- BORDEN, R. D. (I) Lt. (j.g.), U. S. N. R. F. Served in U. S. N. during Spanish War. Re-entered service, 6 Apr. '17. Ensign, U. S. N. R. F., 29 Sept. '17; Lt. (j.g.), 5 Oct. '18. A. E. F., Nov. '17—Feb. '19; Watch and Gunnery Officer, U. S. S. Margaret, Azores; Watch and Communication Officer, U. S. S. Patuxent, Inverness, Scotland, attached to U. S. Mine Sq. No. 1 assisting in planting the Northern Mine Barrage from the Orkney Islands to the coast of Norway, 28 May '18. (Pages 229 and 235.)
- BRIGHAM, T. W. (XIII) Ensign, U. S. N. R. F. Ordered in Mch. '17 to report at Newport for active service, and then ordered to remain in regular occupation. See Civilian Record.
- CHASE, A. M. (II) Lt.-Col., Ord. Corps. Maj., Ord. Corps., 15 Dec. '17; Lt.-Col., 5 Mch. '19. Chief, Truck and Trailer Unit, Motor Equipment Sect., Engr. Div., Ord. Dept., Washington, D. C., 1 Jan. '16—June 18. A. E. F., 1 July '18—7 May '19; Chief, Motor Equipment Sect., Tours, France; Dist. Designing Engr., Ord. Dept., Syracuse, N. Y. Certificate of Merit from Commander-in-Chief, A. E. F.
- COOKE, F. H. (I) Comdr., C. E. C., U. S. N. Entered Service, Corps of Civil Engrs., U. S. N., 1 Jan. '04; Lt. Comdr., 1 July '14; Comdr. (T.), 1 July '18. A. E. F., 16 Apr. '18—1 Jan. '19, in charge of construction of Lafayette Radio Station, at Croix d'Hins, Gironde, near Bordeaux, France. Bu. Yards and Docks, Washington, D. C.
- CUTTING, G. W., JR. (I) Capt., Engr. R. C., 28 Oct. '18; not called for active duty. See Civilian Record.
- FORD, G. B. (IV) Maj., Amer. Red Cross, 4 June '17. A. E. F., 20 June '17—9 Oct. '19; organized Amer. Red Cross Bu. in France, '17; organized Amer. Red Cross Service for Housing Refugees throughout France, and Reconstruction Research Service, '18; wrote "Out of the Ruins", on the devastation and reconstruction of France, and lectured on Town Planning and Housing, U. S. Army Educational Corps, '19. See Civilian Record.
- GEIGER, A. W. (III) Capt., Engrs. A. E. F., Chief Engr. with Co. D, 30th Engrs., 1st Army.
- GRAFF, S. D. (VI) Maj., Ord. Corps. Capt., Oct. '18; Maj., 14 July '19. Field Service, Supply Div., Ord. Dept., Oct. '18—May '19; Purchase, Storage and Traffic Div., General Staff, May '19 to date (3 Feb. '20.)
- HALL, M. W. (VII) Maj., M. C. Base Hospital, Ft. Riley, Kan., Dec. '17; Camp Surgeon, Camp Jackson, S. C., Mch. '19.
- HALLSTROM, W. A., Capt., Adj. Gen. Dept. Army Field Clerk, Hq. Northeastern Dept., Boston, Mass.
- HAMLEN, H. H. (VI) Lt., U. S. N. R. F. Lt., U. S. N. R. F. Asst. Dist. Communication Supt., Apr.—Oct. '17; Dist. Comm. Supt., Oct. '17—22 Mch. '19, on Staff of Commandant, Sixth Naval Dist., Hq., Charleston, S. C.
- HARPS, H. M. (I) Capt., Engrs. Student, Engr. Off. Tr. Sch., Camp Humphreys, Va., 19 Aug. '18; Co. A, 551st Bn., Engrs. Disch. 6 Jan. '19.
- HECKMAN, J. C. (X) Col., Ord. Corps. Maj., Ord. Corps., 28 May '17; Lt.-Col., 13 Jan. '18; Col. 30 July. Head, Cons. and Operating Sections, Supply Div., Ord. Dept. A. E. F., 5 Aug. '17—19 Oct. '18, England and France, studying Ord. Supply Systems of the A. E. F., English and French Armies; Chief, Supply Div. Ord. Dept.; Chief, Field Service, after armistice. Disch. 14 Feb. '19.
- HUSSEY, J. W. (XIII) Ensign, U. S. N. R. F. Commissioned 17 Mch. '17. Ordered to active duty, 8 Apr. '17; orders to active duty commuted, to continue activities as Naval Architect for Army and Navy Construction. See Civilian Record.
- KEITH, L. S. (VI) Lt.-Col., General Staff. Maj., General Staff, 14 May '18; Lt.-Col., 16 July '19. Statistics Branch, General Staff, 14 May '18; transferred to Purchase, Storage and Traffic Div., General Staff, 3 Apr. '19; Statistician, War Dept., Claims Bd., 4 Apr. '19.
- LITTLE, J. L. (IV) Capt., A. S. A. 1st Lt., Aviation Sect., Sig. C., 25 Oct. '17; Capt., A. S. A., 1 Aug. '18. Garden City, N. Y., 10 Nov. '17. A. E. F., 4 Dec. '17—Mch. '19; Staff Officer, Hq. Cons. Div., A. S., France.
- MCCRUDEN, F. H. (V) Capt., M. C., 27 Dec. '17. Active duty as Chief of Laboratory Service, U. S. A. Gen. Hosp. No. 10, Nov. '18.
- MERRILL, A. S. (X) 1st Lt., Ord. Corps. Inspection Div., 11 Dec. '17; ordered to Canada at inception of work on U. S. contracts for munitions, 5 Jan. '18, supervising inspection of forging of 75 mm. shell forgings, machinery

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- of forgings, and production of adapters for 75 mm. and 155 mm. shells; after armistice to date (Jan. '20); Member, Salvage Bd., disposing of materials and tools taken over by U. S. in settling claims, and winding up affairs connected with the Canadian contracts.
- NEALL, N. J. (VI) Maj., Q. M. C. Commissioned 5 Apr. '18. Advisory Engr., Electrical Sect., Engr. Div., Cons. Div., Washington, D. C.; Chief, Standardization Sect., Engr. and Standardization Branch, Purchase, Storage and Traffic Div., General Staff, Washington, D. C., Sept., '18—15 May '19.
- PATCH, J. A. (X) Prof., Syrian Protestant College, Beirut, Syria; Vice-Chairman, Beirut Chapter, Amer. Red Cross, directing civilian relief and equipping a hospital unit to serve with the Ottoman Army, '16. (Page 296.)
- PIGMAN, G. W., JR. (VI) Pay Insp., U. S. N., Washington, D. C.
- REIMER, A. A. (I) Maj., Engrs. Capt., Engrs., 8 May '17; Maj., 15 Aug. '17. With 305th Engrs., 15 Aug. '17; Inst., Engr. Off. Tr. Camp, 4 Jan. '18; 108th Engrs., 1 May; transferred to Civilian Status in Ord. Dept., 6 May '18. See Civilian Record.
- SMITH, C. E. (I) Maj., Q. M. C. Cons. Div., Q. M. C., 24 Apr. '18; Asst. to Chief of Cons. Div., Hq., Washington, D. C., 6 May '18—13 Feb. '19.
- SOUTHWORTH, F. W. (IV) Comdr., C. E. C., U. S. N. R. F., Lt. Comdr., C. E. C., U. S. N. R. F., 11 Sept. '18; Comdr., 1 July '19. Project Mgr., Hosp. Sect., Bu. Yards and Docks, Navy Dept., Washington, D. C., in charge of designs and supervision of the cons. of all naval hosp. and allied building work in U. S. and its possessions, and overseas.
- STEVENS, RALPH (III) Maj., F. A. Replacement Troops, unassigned, 29 Aug. '18.
- UTER, RUSSELL (I) Capt., Engrs. Commissioned 11 June '17. Off Tr. Camp, 16 May '17; 114th Engrs., 9 Sept.—1 Nov. '17. A. E. F., 26 Nov. '17—4 July '19; Dept. Cons. and Forestry, S. O. S., 22 Dec. '17—28 May '19; Water Supply Officer, Intermediate Sect. (East), stationed at Nevers; also at Paris and Tours. (Page 219.)
- THURBER, C. D. (I) Comdr., C. E. C., U. S. N. Lt. (j.g.), Jan. '04; Lt. Comdr., 1 July '14; Comdr. 1 July '17. During war, in charge of design of public works, Bu. Yards and Docks, Navy Dept., Washington, D. C.
- TIFFANY, G. S. (IV) Col. Inf. Maj., Lt.-Col. Col. Inf. Director, School of Arms, 84th Div., Camp Taylor, Ky., '17; attached 159th Depot Brig., 84th Div. '18; Chief of Staff, 15th Div., Camp Logan, Texas, '19.
- TOWNLEY, F. L. (VI) 1st Lt., Inf. Co. E, 351st Inf. A. E. F., Co. D, 809th Pioneer Inf., until July '19.
- WITHERELL, F. W. (XI) Maj., Ord. Corps, working on 75 mm. guns.

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- ADAMS, C. W. (VI) Pvt., F. A., 26 Oct. '18. Candidate, F. A., Cent. Off. Tr. Sch., Camp Taylor, Ky.
- ALDRICH, W. T. (IV) Capt., Ord. Corps. Commissioned 22 May '18. A. E. F., 15 July—21 Dec. '18; Hq., S. O. S., Tours, France. Chevalier of the Legion of Honor. (Page 143.)
- ANDERSON, C. L. B., (I) Lt. Comdr. U. S. N. R. F. Lt., U. S. N. R. F., 30 Mch. '18; Lt. Comdr., 7 June '19. Civil Engr., with Aide for Public Works, Bu. of Yards and Docks, 5th Naval District.
- BACKUS, L. R. M. (IX) Sgt., Non-Commissioned Off. Tr. Sch. Non-Commissioned Officers Tr. Sch., Seattle, Wash.; Inst. and Co. Clerk, acting as Sec. and Treas. of the School.
- BENSON, H. F. (XI) Lt., stationed at North American Motors Co., Pottsville, Pa.
- BITTINGER, CHARLES (XIII) Ensign, U. S. N. M. M. 1 cl., 11 June '17; Warrant Officer, 8 July '18; Ensign, 2 Oct. '18. Camouflage Sect., Bu. Cons. and Repair, Washington, D. C., Asst. Naval Constructor, Research Lab., Eastman Kodak Co., Rochester, N. Y.; on special Bd. to determine the best ray filters for the Navy's optical instruments.
- BRICKLEY, W. J. (II) Lt. Comdr., U. S. N. R. F., Aug. '18. Director, Base Hosp. Unit No. 22.
- BROWN, R. H. (XI) Maj., Sn. C. Capt., 19 Sept. '17; Maj., 3 Aug. '18. Sn. Inspector, Camp Humphreys-Va., Mch. '18; transferred, Office of the Sur.-Gen., Washington, D. C.; Camp Sn. Engr., Camp Humphreys, supervising water supply, including filtration plant, sewerage system, disposal of garbage and other wastes, and in charge of anti-mosquito and fly work. Disch., 10 Dec. '18.
- CLARK, R. B. (XIII) Lt., U. S. N. R. F. Lt. (j.g.), U. S. N. R. F., 28 Mch. '18; Lt., 6 Dec. '18. Asst. Naval Constructor, and Inspector, Hull Material, Eastern Dist., U. S. N., inspecting and testing auxiliary machinery, ship fittings and machine tools for U. S. N. Inactive duty, 3 Sept. '19. See Civilian Record.
- CROSS, G. I. (XIII) Capt., Engrs. Student Officer (N.G.), Mexican Border, July '17; Capt., Engrs., 5 Aug. '17; 101st Engrs. A. E. F., 29 Sept. '17—5 July '19; G-4, G. H. Q., 10 Jan. '18; G-4 1st Army, 20 Aug.; G-4 2d Army, 4 Nov.; Liaison Officer, French Comm. Regulatrice Automobile; French G. H. Q., 27 Nov.; Historical Sect., G. H. Q., 12 Apr. '19. At Villers-Bretonneux with English Army, Mch. '18; St. Mihiel Drive, Sept. 12-13; Meuse-Argonne Offensive, Sept. 25—Nov. 4. Gassed at Cheppy, in the Argonne. Two Citations for Croix de Guerre; Divisional Citations, 13 Sept. '18 at St. Mihiel and 30 Sept., Argonne.
- DRISCOLL, F. B. (I) Lt. Comdr., U. S. N. R. F., 13 Mch. '17—2 Feb. '18. Aide to the Commandant, Fifth Naval Dist., Norfolk, Va., 6 Apr. '17; in charge of communications in the district, which included the states of Md., Va., W. Va., and N. C.; in charge of the Coast Guard Stations in the district; Shore Communication Officer for Commander-in-Chief, Atlantic Fleet; See Civilian Record.
- ESTABROOK, MANSFIELD (II) Capt., Ord. Corps. Commissioned 1 Aug. '17. Winchester Repeating Arms, Sept. '17—May '18; Inspector of Ord., Remington Arms Co., Ilion, N. Y., mfg. small arms and machine guns, May '18—Mch. '19. (Page 4.)

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- EVELAND, A. J. (III) Capt., Engr. R. C. Pvt., Engrs., 1 Nov. '18; Capt. E. R. C., 18 Nov. '18. 1st Repl. Regt. Washington Barracks, Washington, D. C. See Civilian Record.
- HAZLEWOOD, SUMNER (I, II) 1st Lt., Engrs., 25 Sept. '17. Commanding 424th Engrs., Camp Sevier, Greenville, S. C., 25 Sept. '17—1 May '19.
- JOHNSON, C. F. (II) Pvt., F. A., 7 Nov. '18. Officer Candidate, 5th and 20th Observation Btry., F. A. Cent. Off. Tr. Sch., Camp Taylor, Ky.
- LOW, DAVID, Ensign, U. S. N. R. F. C. E., U. S. N. R. F., Class 1, 19 May '17; Gunner (E), 22 Apr. '18; Ensign, 4 Jan. '19. A. E. F., 30 June '17—20 July '19; U.S.S. Nahma; on Mediterranean convoys during war until armistice; Turkey and Black Sea, Dec. '18—June '19.
- MONAGHAN, J. F. (II) Lt.-Col., Ord. R. C. Capt., Ord. Corps., 8 Oct. '17; Maj., 6 May '18; Lt.-Col., Ord. R. C. Chief, Civil Engr. Dept., Supply Div., Ord. Dept., Washington, D. C.; Consulting Textile Engr., Army Smokeless Powder Plant, Nitro, W. Va. A. E. F., Sept. '18—Apr. '19; Liaison Officer between Ord. Dept. and Engr. C.; Appraiser for twenty-one Ord. Depots after armistice; Member War Claims Bd., and Chairman, Textile Div. of Bd., to survey and appraise damage done by Germans to Textile Plants in Belgium and France, Peace Comm., Dec. '18. Consulting Textile Engr., Office of Director of Sales, Ord. Dept., Washington, D. C., Apr.—Aug. '19.
- NEWLIN, W. J. (II) Spec. Educational Recruiting Sec. for U. S., Y. M. C. A., Aug. '18—May '19. A. E. F., 10 May—15 June '19; Chief of Govt. Div., Citizenship Dept., Army Educational Corps, including Post and Division Schools, University at Beaune, and other Universities in France and England.
- PLUMB, RALPH (II) Maj., Ord. Corps. Railway Arty., Ord. Dept., 8 Jan. '18. A. E. F., 25 Apr. '18—17 Jan. '19, in charge of field repair of railway artillery in France. Chateau-Thierry; St. Mihiel Offensive; Meuse-Argonne Offensive. Certificate of Especially Meritorious Service from Chief of Ordnance.
- RASH, F. D. (III) Maj., Inspector General's Dept. Washington, D. C., 10 Aug.—18 Dec. '18. See Civilian Record.
- SCHLESINGER, B. E. (V) Capt., C. W. S. In charge of the mfr. and development of coalite and absorbent charcoal for gas masks, 13 Mch. '18—5 Apr. '19.
- SEARS, S. C. (III) Capt., Engrs., Camp Humphreys, Va.
- SHEPARD, R. L. (IV) Maj., Marine Corps. Hq., F. A., Marine Corps. A. E. F., '17. 2d Bn., 10th Regt. Marines, Quantico, Va., Apr. '19.
- STEARNS, R. H. (XI) Lt., C. E. C., U. S. N., 4 May '18. Working on design of structures for Navy Yards and stations and Naval Ordnance Plant, South Charleston, W. Va., for Bu. Yards and Docks, Navy Dept.
- STONE, S. J. (I) Capt., Engr. O. R. C., 20 Sept. '17. Not in active service; Member, Engrs. Bn. of New York City, '16—'17. See Civilian Record (page 244).
- TRENHOLME, A. K. (IV) Pvt., Tank C., 1 Nov.—16 Dec. '18. 346th Bn. See Civilian Record.
- *WALCOTT, W. W. (IX) See Roll of Honor (page 114).
- WESSON, HAROLD (II) Lt. Comdr., U. S. N. R. F. Lt., U. S. N. R. F., Lt. Comdr., Oct. '19. Buffalo, N. Y., Jan. '18; New York City, Mch. '18—22 Feb. '19.
- WILLIAMS, R. L. (II) C. M., U. S. N. R. F. (Class 4). See Civilian Record.
- WHITMAN, RALPH (I) Lt. Comdr., C. E. C., U. S. N. Ensign, U. S. N., '07; Lt., Apr. '17; Lt. Comdr., 1 July '17. Aide on Staff of Military Governor of Santo Domingo, Apr. '17 to date (Sept. '19); American Member, Dominican Claims Comm., 10 June '19.
- WOOD, L. P. (I) Maj., Engrs. Entered Service, 8 May '17; Capt., Engrs., 17 June; Maj., 13 Nov. '18. A. E. F., 10 Dec. '17—10 June '19, in office of Chief Engr., forecasting needs, standardizing and initialing wholesale procurement of water supply materials of all kinds. (Page 219.)

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- ADAMS, RAYNE (IV) Capt., Cons. Dept., Amer. Red Cross. 2d Lt., 23 July '18; 1st Lt., Dec. '18; Capt., Feb. '19. A. E. F., 7 Aug. '18—6 Dec. '19; Cons. Dept., Eastern Zone, Aug. '18—May '19; Sect. of Salvage, Paris, May—Dec. '19.
- BARRY, H. B. (II) Lt.-Col., Q. M. C. Capt., Q. M. C., 18 Apr. '17; Maj., 3 June '18; Lt.-Col., 25 Sept. '18.
- BLANCHARD, HAROLD (XIII) Lt.-Col., Inf. O. R. C. Maj., 5 Jan. '17; Lt.-Col., 17 Apr. '19. Transferred to 307th Am., Tn., 11 Mch. '19. A. E. F., 25 Apr. '18—26 Apr. '19. Toul Sector; Marbache Sector; St. Mihiel Offensive; Meuse-Argonne Offensive. Distinguished Service Cross; Croix de Guerre with Palm. (Pages 131 and 191.)
- BLODGETT, G. R. (VI) 2d Lt., A. S. Procurement Div., 7 June '18—Dec. '19. See Civilian Record.
- BORDEN, N. E., Maj., Inf. Sgt., 1 Apr. '17; Capt., Inf. O. R. C., 8 May '17; Maj., 15 Aug. '17. Co. E, 6th Mass. Inf., 1 Apr.—5 May '17; Asst. Inst., Niagara O. T. C., 8 May—15 Aug. '17; Bn. Comdr., 315th Inf., 15 Aug.—2 Oct. '17; Camp Meade, Md., Oct. '17—June '18. A. E. F., 30 June '18—14 Apr. '19; Student, Army General Staff College, Langres, 2 Oct. '18—15 Jan. '19; 153d Inf. Brig. (77th Div.), 15 Jan. '19—10 May '19. Montfaucon Sector 12-26 Sept. '18; Meuse-Argonne Offensive, 26 Sept.—2 Oct. '18.
- COMINS, W. H. (III) Maj., Inf. Capt.; Maj., 2 Aug. '18. 1st Off. Tr. Camp, Ft. Riley, Kan., 2 June '17—15 Aug. '17; 164th Depot. Brig., Camp Funston, Kan.; 70th Inf., 10th Div., Camp Funston, Aug. '18—14 Jan. '19.
- *CROSS, C. R. (VI, IX). See Roll of Honor (page 127).

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- EWART, C. W. (III) 1st Lt., Engrs. Pvt., 30 Mch. '18; 2d Lt., 14 May '18; 1st Lt., 8 Apr. '19. American University assigned to Co. D, 43d Engrs., 30 Mch. '18. A. E. F., 30 May '18; Co. A, 14th Engrs.; served as C. O., Forestry Detachment at Merricy, Haute-Marne, and Chateaux, Vosges, later at Croix de Pierre in Argonne Forest and at Eclaron Haute-Marne.
- GEROMANOS, H. W. (V) Maj., M. T. C. Organized R. O. T. C. instruction for M. T. C. and arranged with colleges for carrying on the course, 20 Sept. '18—9 Aug. '19. See Civilian Record.
- GRANT, K. C. (I) Maj., Cons. Div., Q. M. C. Capt., Engr. R. C., 18 Apr. '17; Capt. Aviation Sect., Sig. C., Nov. '17; Capt., Cons. Div., Q. M. C., Aug. '18; Maj., Oct. '18. In charge Engr. Sect., Cons. Div., Aviation Sect., Sig. C., Washington, D. C., May '17—Jan. '18; C. O., 499th Aero Sq., Langley Field, Va., Jan.—Aug. '18; Asst. to Chief of Sect., of Cons. Div. of Army that had charge of construction of camps, hospitals, and refrigerating plants in U. S. A., Aug.—Sept., '18; in charge construction of addition to Camp Grant, Ill., Sept.—Dec. '18; Asst. to Chief of Sect., Div. of Army, Washington, D. C., Dec. '18—Mch. '19.
- HANSEN, PAUL (XI) Capt., Engrs., 1 Mch. '17. A. E. F., Aug. '17—Feb. '19; attached to staff, G. H. Q., Aug. '17; Hq., A. S., S. O. S., Feb. '18; Hq., 1st Army, July '18; Hq., 2d Army, Oct. '18; Peace Comm., Jan.—Feb. '19; installed water supplies for hospitals, aviation camps, villages and cantonments; also handed water supply installations at the front during St. Mihiel Offensive.
- HAWORTH, L. B. (II) Maj., Q. M. C. Capt., 31 Aug. '17; Maj., 14 Aug. '19. In charge of parking, Pier No. 12, New York City, night shipping at Hoboken, N. J., Warehouse and Sub Depot, Hartford, Conn., Sub Depot, Troy, N. Y.; in charge various divisions and branches, Q. M. C., at Philadelphia, Pa., Washington, D. C., and San Francisco, Calif.
- JONES, J. L. (VI) Capt., Engrs. Commissioned 17 June '18. 4th Co., Engrs., Off. Tr. Camp, Camp Lee, Va.; Co. A, 526th Engrs., Camp Pike, Ark., June '18. A. E. F., July '18—June '19; at Chaumont, Mapey-sur-laise and points on the Western Front.
- LOCKETT, KENNETH (II) Capt., Engrs., 19 Sept. '18. Camp Humphreys, Va., 21 Sept. '18—11 Jan. '19.
- MCALLEP, J. A. (III) 1st Lt., Engrs. Corp., 22 May '17; Sgt., 1 July '17; 1st Lt., 14 Nov. '17. A. E. F., 9 Aug. '17—6 July '19; 18th Engrs.; Office of Engr. Purchasing Officer in Paris and on detached service in Northern Africa; special duty at Angers and St. Aignan, Dec. '18—Apr. '19; assigned 132d Engrs., Apr. '19; C. O., Co. C, 132d Engrs., returning to U. S., July '19.
- MCCARTHY, C. E. (X) Maj., General Staff. Pvt., Off. Tr. Camp, 25 Aug. '17; Capt., Inf., 27 Nov. '17; Maj., Inf., 1 Aug. '18; Maj., General Staff, 20 Dec. '18. 2d Co., 2d Off. Tr. Camp, Presidio, Calif., 25 Aug. '17; C. O., Co. I, 13th U. S. Inf., 8th Div., Camp Fremont, Calif., 15 Dec. '17—29 Aug. '18; Operations Div., General Staff, Washington, D. C., 10 Sept. '18 to date (24 Oct. '19).
- MESSINGER, H. C. (VI) 1st Lt., M. C., 26 Sept. '18. Regimental Surgeon, 3d Regt., F. A. Repl. Depot of Camp Jackson, S. C., 11 Oct. '18—1 Feb. '19.
- MIXTER, C. G. (VII) Maj., M. C. Capt., 28 Oct. '17; Maj., 24 Nov. '18. A. E. F., 2 Nov. '17—1 Feb. '19; Head Doctor, Hospital Bendvole, Nov. '17; detached service Canadian C. S. No. 3, B. E. F., 10 Mch.—28 May '18; C. O. Amer. Red Cross Military Hosp. No. 7, during Château-Thierry Offensive, June—July '18; Asst. Surgical Consultant, 1st Army Corps, Aug. '18; Asst. Surgical Consultant, 4th Army Corps, Sept. '18; Acting Surgical Consultant, 4th Army Corps, Oct. '18; Asst. Surgical Consultant, 2d Army, Oct.—Nov. '18.
- MIXTER, W. J. (VII) Lt.-Col., M. C. Capt., 2 July '17; Maj., 1 Oct. '18; Lt.-Col., 2 Mch. '19. Attached to the American Ambulance of Paris, serving at Juilly and Annel in volunteer hospitals, Feb. '15—June '15. Returned to U. S. and joined Base Hospital No. 6, July '17. A. E. F., 11 July '17—Feb. '19; Bordeaux, July '17—June '18; Dist. Surgeon, Amer. dist. about Winchester, England, June '18; C. O., Base Hosp. 204, 20 Aug. '18—1 Jan. '19.
- MOORE, L. E. (I) Maj., Engrs. Capt., 7 May '17; Maj., 14 June '18. On staff, Chief of Engrs., Washington, D. C., Sept. '17. A. E. F., Oct. '17—Sept. '18; designed all wooden and steel bridge standards for the expeditionary forces, writing several textbooks on bridges for the use of engr. troops; in charge of extensive bridge reconnaissance across the front; later in charge maintenance, construction, and design of highway bridges with 1st Army; returned to U. S. to secure bridge-building material; armistice prevented return.
- NEWMAN, R. R. (I) Capt., Engrs. With 403d Engrs. at Ft. Douglas, Utah, 23 Oct. '18; Inst., Engr. School, Camp Humphreys, Va.
- O'CONNELL, G. P. (I) Capt., Engrs. Off. Tr. Sch., Camp Humphreys, Va., 24 Sept. '18—4 Dec. '18.
- PETERS, W. C. (VII) Maj., Sur.-Gen. Office, M.D., 19 May '17. Chief of Orthopedic Service, Camp Devens, Mass., May '17—6 May '19.
- PROCTOR, REDFIELD, (II) Capt., Engrs. 1st Repl. Regt., 12 Aug. '17—11 Jan. '19. See Civilian Record.
- PUTNAM, WALTER (I) Pvt., C. A. C. Capt., Engrs. 10 July '17; declared physically disqualified and honorably disch., 12 Oct. '17; specially inducted as Pvt., C. A. C., for Off. Tr. Camp, 24 Oct. '18. Disch., 13 Dec. '18. See Civilian Record.
- RICE, G. W. (IX) Pvt., 1 cl., Inf., 71st N. Y. Inf., M. G. Co., Camp Wadsworth, S. C.
- SEABURY, G. T. (I) Maj., Q. M. C., Cons. Div., 5 Apr. '18. Expediting Officer in Engr. Sect. of Cons. Div. on all work for Sig. C., Dept. of Military Aeronautics and Dept. of Aircraft Production, 5 Apr.—Aug. '18; Supervising Constructing Q. M. in Building Div. of Cons. Div., in charge of all construction at Camps Devens, Upton, Mills, Merritt, Dix, Meade, and Lee, Aug. '18—18 June '19.
- SMITH, F. H. (II) Lt., C. A. C., A. E. F.

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- STANLEY, L. R., Capt., A. S., Sig. R. C. 1st Lt., 7 June '18; Capt., 13 Sept. '19. Placed in charge of the Machinery Sect., Bu. of Aircraft Production.
- STILLINGS, H. E. (II) Capt., Ord. Corps. 3 Nov. '18. Personnel Mgr., Bridgeport Dist. Ord. Office, 20 Nov. '18—to date (18 Aug. '19). See Civilian Record.
- TAYLOR, J. L., JR. (I) Maj., Engrs. Capt., Engr. O. R. C., 25 Jan. '17; Maj., 1 Oct. '18. C. O., Co. B, 15th Engrs., 20 May '17; Adj., 2d Bn., 20 June '17. A. E. F., 9 July '17—30 Dec. '18; Div. Cons. and Forestry, 1 Oct. '18—11 Jan. '19.
- WADLEIGH, J. W. (I) Lt.-Col., Marine Corps. 2d Lt., 26 Jan. '00; Lt.-Col. (T), 1 Aug. '17. Service in Haiti throughout the war.
- WEEKS, PAUL (II) Maj., Ord. Corps. Capt., 29 Apr. '18; Maj., 29 Oct. '18. At Washington, D. C., assisted in design and production of tanks; Chief of Tank, Tractor and Trailer Div. of the Ord. Dept., Feb.—3 May '19. See Civilian Record.
- WORCESTER, P. H. (I) Maj., F. A. Ord. Officer, 82d Div.

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- ACKERMAN, A. S. (III) Capt., Engrs. Pvt., Off. Tr. Camp, 8 May '17; 1st Lt., Engrs.; Capt., 25 Jan. '18. 1st Off. Tr. Camp, Ft. Niagara, N. Y., 8 May '17; Asst. to Cons. Q. M., Camp Shelby, Miss., 20 July '17; Washington, D. C., 20 Oct.; Governor's Island, N. Y.; Q. M. Terminal, Norfolk, Va., 1 Jan. '18; Asst. Supervising Cons. Q. M., Cons. Div., Washington, D. C.; Camp Lee, Va. A. E. F., 20 June '18—9 Aug. '19; in charge of water works construction, St. Nazaire and vicinity 15 July '18; Co. C, 137th Engrs., 20 Nov.; in charge water works construction and maintenance, Base Sect. No. 1, 23 Dec.; C. O., 137th Engrs., 8 May '19; Acting Sect. Engr., Officer, Base Sect. No. 1, 16-24 June.
- ADAMS, W. H. (II) Capt., Engrs., 18 May '18. C. O., Co. H, 5th Engr., Tr. Regt., Camp Humphreys, Va., Aug. '18; personnel work, Office Chief of Engrs., Washington, D. C., Sept. '18; Chief of Educational Service, Gen. Hosp. No. 20, Whipple Barracks, Ariz.
- BAKER, H. S. (I) Col., Engrs. Capt., Engrs., 19 July '17; Lt.-Col., 13 Nov.; Col., 3 Sept. '18. Cons. Q. M., Camp Bowie, Ft. Worth, Texas, 19 July '17. A. E. F., 30 July '18—23 May '19; 11th Engrs., 3 Sept. '18. St. Mihiel Offensive, 12-17 Sept.; Meuse-Argonne Offensive, 26 Sept.—11 Nov. '18. (Pages 187 and 318.)
- BARKER, W. S. (III) Capt., C. A. C. 1st Lt., C. A. C., 15 Aug. '17; Capt., 2 Nov. '18. 1st Off. Tr. Camp, 10 May '17; 3d Provisional Btry., Anti-Aircraft Sect., C. A. C. A. E. F., France and Belgium, 7 Sept. '17—23 Nov. '18; with British in Flanders and with French on Verdun Front.
- BRYAN, C. A. (I) Capt., Engrs., 28 Sept. '17. Asst. Cons. Q. M., Camp Beauregard, La., in charge of sewer and water construction; Cons. Q. M., and C. O., Hq. Co., Ft. Harrison, Ind., 22 Oct. '18. See Civilian Record.
- BURNS, FINDLEY (IX) Capt., attached General Staff, July '18. Asst. Chief, Research Branch, Oct. '18.
- CAPELLE, G. C. (XIII) Capt., Engrs. 1st Lt., Engrs., May '17; Capt., July '18. Asst. to Dept. Engr., Northeastern Dept., Boston, Mass., June—Sept. '17; 101st Engrs., 26th Div., Sept. A. E. F., Sept. '17—Sept. '18. Building hospitals and equipments as divisional Engrs. in the defensive and offensive sectors, Bazoilles, Orguevaux, Toul and Château-Thierry. Organized Engineering Course, Inf. Off. Sch., Camp Lee, Va., Oct. '18; Asst. to Dept. Engrs., Northeastern Dept., Boston, Mass., Jan. '19.
- COLE, C. S. (II) (XIII) Maj., Ord. Corps. Capt., Ord. Corps., 26 Mch. '17; Maj., 31 July '18. On Staff of Chief of Ord.; Army Inspector of Ord., Western Cartridge Co., Lowell, Mass., Sept. '18. (Page 264.)
- COOPER, C. H. (III) Capt., C. A. C. Candidate, 26 Aug. '17; Capt., C. A. C., 27 Nov. '17. 2d Off. Tr. Camp, 26 Aug. '17; Coast Defenses, Portland, Maine, 26 June '18; 50th Arty., C. A. C. A. E. F., 7 Oct. '18—14 Feb. '19.
- CRAVEN, W. S. (III) Capt., Engrs. Candidate, Engrs. Off. Tr. Camp, 23 Dec. '17; Capt., Engrs., 1 May '18; Engr. Off. Tr. Camp, Camp Lee, Va., 23 Dec. '17; C. O., Co. D, 22d Engrs., Ft. Harrison, Ind., 1 May '18. Adj., 24 Aug.
- DANFORTH, G. C. (III) Capt., Engrs., 26 Sept. '17. A. E. F., 9 July '18—27 June '19; 602d Engrs., 5th Corp., 1st Army; road construction in 5th Corps Area from Avocourt to Laneville, including a 60 cm. railroad between Romagne and Landres-et-St. George; Corps Engrs., 7th Corps. St. Mihiel Offensive; Meuse-Argonne Offensive; Army of Occupation, Dec.—June '19. (Page 185.)
- DANIELS, R. W. (II) reported in the A. E. F. by Tech Bu. in Paris and by *Army and Navy Journal* as slightly wounded.
- EUSTIS, A. H. (III) Warrant Boatswain, U. S. N. R. F., 19 Sept. '18. Asst. Navigator and Junior Watch Officer, U.S.S. Absaroka, 19 Sept.—16 Dec. '18. See Civilian Record.
- FOSTER, S. A. (X) Capt., F. A. Pvt., F. A., 26 Aug. '18; Capt., 10 Dec. F. A. Cent. Off. Tr. Sch., Camp Taylor, Ky.
- GAENSLEN, G. R. (III) Capt., A. S. P. (Spruce Production Div.), Capt., Aviation Sect., Sig. R. C., 28 Dec. '17. Attended 3d Off. Tr. Camp, Presidio, San Francisco, Calif., 24 Aug. '17; in command 102d Spruce Sq. (414th Sq.), 28 Dec. '17—2 Jan. '19.
- GLEASON, G. H. (X) Pvt., F. A. Cent. Off. Tr. Sch., Camp Taylor, Ky., 22 Oct. '18.
- GREEVES, W. B. (II) Capt., Engrs. 1st Lt., Engrs., and Capt., June '18. Office of Chief Engrs., Washington, D. C.

TECHNOLOGY'S WAR RECORD

- HILL, F. A. (II) Reported Ensign, U. S. N.
- JEWETT, F. B. (VI) Lt.-Col., Sig. C. Maj., Sig. C., 1 May '17; Lt.-Col., 1 Dec. '17. Advisory Member, Special Submarine Bd., U. S. N.; Member, State Dept., Special Comm. on Cables; Member, various Comms., National Research Council.
- JORDAN, R. C. (II) Capt., M. T. C., 26 Oct.—25 Nov. '18.
- JUDSON, H. C. Maj., Marine Corps. C. O., Searchlight Bn., advanced Base Force. Marine Barracks, Navy Yard, Philadelphia, Pa. (88th, 22d, and 159th companies marines regularly part of command); in charge of searchlight development work for Navy and Marine Corps.
- KEARNY, P. J. (II) Capt., A. S. P. Capt., Ord. Dept., Sept. '17; transferred to Aircraft Production, Dec. '17—American Base Ord. Depot for France, Washington, D. C., Sept. '17; Airplane Production Service, Dayton, Ohio, Dec. '17—1 Jan. '19.
- LAWTON, R. M. (I) Maj., Engrs. 301st Engrs., Div. Hqs., Camp Devens, Mass., Nov. '17. A. E. F., Jan. '18—Apr. '19.
- LIVERMORE, ROBERT (III) Capt., Engr. R. C. Commissioned, 17 July '18. Camps Lee and Humphreys, 26 July—4 Dec. '18; Co. Comdr., 5th Engrs. Tr. Regt., until 4 Dec. '18.
- McINTOSH, C. J. (II) Capt., Engrs. Commissioned Apr. '17. Camp Lee, Va., Dec. '17; General Engr. Depot Washington, D. C., Feb. '18. Relieved Active Duty, Apr. '18, at request of U. S. Shipping Bd. Returned to active duty, Camp Humphreys, Va., Oct.—Dec. '18.
- McKENNA, J. A. (II) Maj., Canadian Engrs. 3d Field Co., Nov. '17.
- MERRILL, H. C. (X) reported in Sn. C., '17. Sn. Engr., Camp Upton, N. Y.
- MOHLER, D. D. (X) Capt., Engrs. Recruiting in New York State, 8 July '17; 102d Engrs., 10 Oct.; Ord. Officer, 21 Jan. '18, and Engr. Officer, 10 Mech., Provisional Depot for Corps and Army Troops, Camp Wadsworth, S. C.; 4th Anti-Aircraft M. G. Bn., 4 July, Camp Hill, Va. A. E. F., 1 Sept. '18—15 Jan. '19.
- OBEAR, G. B. (VI) Capt., Sn. C. Hazlehurst Field, Mineola, N. Y.
- RICHARDSON, R. L. (Sp.) 1st Lt., Inf. Small Arms Firing Officer, Camp Dix, N. J., 27 Aug. '17; Co. M., 309th Inf., Camp Gordon, Ga., 14 Dec.; Inst. 71st Co., 6th Inf. Repl. Regt., 26 Aug. '18; Inst., Small Arms Firing School, Camp Perry, Ohio, 1 Aug.; Co. C, 89th Inf., Camp Sevier, S. C., 27 Aug.
- ROBERTSON, W. F. (X) Cadet, C. A. Off. Tr. Sch., Ft. Monroe, Va., 21 Sept. '18.
- TOLMAN, R. C. (X) Maj., C. W. S., 22 Aug. '18—6 Feb. '19. Research Div., C. W. S., Washington, D. C. See Civilian Record.
- WILSON, G. D. (I) Capt., Engrs. Co. 5, Engr. Off. Tr. Sch., Camp Humphreys, Va.; Hq. Detachment, Engr. Troops, Camp Shelby, Miss.; Co. B, 218 Engrs., Camp Travis, Texas.
- WINTER, WILLIAM (IX) Capt., Inf. 1st Lt., A. S., 12 May '17; Capt., Apr. '18; transferred to Inf., Oct. Adj., A. S. Depot, Garden City, N. Y., 12 May '17. A. E. F., June '18—Apr. '19; Personnel Officer, 2d Aviation Training Center, Tours; transferred to Inf., 163d Regt., St. Aignan, Oct. '18; Billeting Officer, Brest, Feb. '19; in hospital, Mech.; invalided home and discharged, June.

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- BELLOWS, R. P., Capt., Amer. Red Cross. A. E. F., Oct. '17—Feb. '19.
- CHACE, F. M. (IV) Cadet, C. A. C. Ft. Monroe, Va., Sept. '17; Arty. Range Detachment, School of Fire, Camp Eustis, Va., until 10 Dec. '18. See Civilian Record.
- CHAMBERLIN, NOEL (IV) Capt., A. S. R. C. Cadet, Plattsburg Training Camp, 23 Aug. '17; 1st Lt., A. S. A., 27 Nov. '17; Capt., A. S. R. C., 1 Mech. '19. School of Military Aeronautics, Champaign Ill., 11 Dec. '17; School of Military Aeronautics, Columbus, Ohio, 17 Jan. '18; Rockwell Flying Field, San Diego, Calif., 21 Mech. '18; Mather Flying Field, Sacramento, Calif., 4 May '18—6 Jan. '19.
- CHAPIN, H. G. (I) 1st Lt., A. S. Aviation Sect., Engr. Div., Cons. Dept., Morrison, Va. A. E. F., 2d Aviation Instruction Center in May '18.
- COCKRILL, EMMET (II) 1st Lt., Ord. Corps. Plant Supervisor, Ford Motor Car Co., Highland Park, Mich.
- CODD, ELIZA (IV) Civilian Employee, Army Educational Corps. Educational Dept., Y. M. C. A., 25 Jan. '19; transferred to Educational Corps, Hosp. Sect., A. E. F., 14 Apr. '19. In France, 4 Feb.—6 July '19, at Keslmon Hospital, Brest, and Base Hosp. 208, Bordeaux.
- CROWELL, W. R. (VIII) Pvt., C. A. C. 1st Co., Los Angeles C. A., Off. Tr. Camp, 29 Oct. '18—13 Dec. '18—See Civilian Record.
- CUNNINGHAM, J. E. (I) Volunteer Ambulance Driver, American Field Service attached to French Army, Apr. '15—Sept. '16. Ambulance Driver, American Field Hosp. Unit at Pagny-sur-Meuse, May '15; Sect. No. 2 at Pont-à-Mousson, July '15; Sect. No. 1, Flanders, Aug. '15; with Sect. No. 1 at Elverdinghe near Ypres, Cappy on the Somme, Verdun and in the Argonne until Sept. '16. See Civilian Record.
- DILLON, W. S., Maj., Inf. Cadet, 2d Off. Tr. Camp, Plattsburg, N. Y.; Capt., Inf., 27 Nov. '17; Maj., July '18—Instructor, 3d Off. Tr. Sch., Camp Upton, L. I.; Supervisor and Inspector of Military Training in various colleges where vocational training for U. S. Army men was given, Apr. '18; in charge of S. A. T. C. for Dist. No. 1 (New England) Hq., Boston, Mass., Sept. '18—15 Feb. '19.

REGISTER OF MILITARY RECORDS

- DUDLEY, H. H. (VI) C. M. M., U. S. N. R. F., 5 Aug. '18. Dist. Detail Office, Naval Auxiliary Reserve; Federal Rendezvous, N. Y.; Naval Overseas Transportation Service; Receiving Ship at N. Y.; Receiving Ship at Boston; U.S.S. Genevieve; U.S.S. Maartensdijk.
- EMERSON, M. L. (I) Maj., C. W. S. Gas Defense Div., C. W. S., 22 Aug. '18. Chief, Adm. Sect., in charge of army personnel work, headquarters personnel, welfare work, and relations with public.
- GODDARD, H. W. (II) Maj., Ord. Corps. Capt., Ord. R. C., 9 Feb. '18; Maj. (N. A.), 25 July '18; Maj., Ord. C., 7 Aug. '18; Maj., O. R. C. Ord. Sect., 17 Apr. '19. With Supply Div., Ord. Dept.; Vice-Chief, Cons. Sect., Control Bu., Ord. Dept.; Joint Chief, Cons. and Engr. Branch, Plant Sect., Production Div., Ord. Dept., in Washington, D. C., 20 Feb. '18—25 Mch. '19; Officer in Charge of Ordnance, Camp Amatol, N. J.; Chief, Loading Plant Sect., Ord. Dist. Claims Bd., Philadelphia, Pa., 28 Jan. '19; Representative of Ord. Salvage Bd. and Chairman, Comm. on Sale of Buildings and Equipment, Ord. Dist. Salvage Bd., New York City, 27 Feb. '19—25 Mch. '19.
- GOLDSTEIN, M. H., Pvt., F. A. Cent. Off. Tr. Sch., 20 Oct. '18.
- GOULD, H. H. (VI) with Motor Transportation Dept., Y. M. C. A. Entered Service, 12 June '18. In France, Oct. '18—July '19.
- GUNN, S. M. (VII). See class of '05.
- HALE, R. K. (I) Col., F. A. Lt.-Col., F. A., 25 July '17; Col., 7 Nov. '18. A. E. F., 25 Sept. '17—27 Mch. '19; Asst. Chief of Staff, 2d Army Corps, 22 Feb. '18; General Staff, July '18; Asst. Chief of Staff, Amer. Embarkation Center, 3 Feb. '19; Chief of Staff, 26th Div., Mch. '19. Somme Offensive, Sept.—Oct. '18.
- HOLCOMBE, A. M. (II) Maj., Ord. Corps. (N. A.). Capt., Ord. O. R. C., 18 Apr. '17; Maj., Ord. Corps. (N. A.), 15 Jan. '18. Detailed in Purchase Storage and Traffic Div., 18 Dec. '18; Office of Chief of Ord., Washington, D. C., 26 May '17—18 Dec. '18; Office of Director of Purchase Storage and Traffic Div., G. S., 18 Dec. '18—4 Sept. '19.
- HOMANS, G. M. (I) (III) Pvt. (Candidate) F. A. 45th Tr. Btry., Off. Tr. Sch., Camp Taylor, Ky., 31 Oct. '18—20 Dec. '18. See Civilian Record.
- HOWES, C. P. (IV) 1st Lt., Engrs., 21 June '18. A. E. F. with Co. A, 55th Engrs., 31 June '18—5 July '19; on detached service in charge of Base Hospital construction at Portiers, Bois de Boulogne, Paris, and Pershing Stadium.
- HOY, A. Y. (XIII) 2d Lt., Royal Garrison Artillery, British Army. Siege Bu., B. E. F., 13 Mch. '17—Jan. '19. Defense of Arras, 28 Mch. '17; British Offensive at Amiens, 8 Aug. '18; Drocourt-Queant Switch (Hindenburg Line), 2 Sept. '18. Mentioned in Sir Douglas Haig's dispatch of Nov. 8, '18, in connection with events of spring of '18 as Signal Officer of 81st Brigade, R. G. A.
- HUNTER, C. F. (VIII) Maj., Ord. Corps. Capt., Ord. R. C., 18 May '17; Maj. (N. A.), 21 Jan. '18. Chairman of Local Civil Service Bd., Personnel Officer, Summary Court Officer, Supt. of Gauge Dept., and General Supt. of Production, Frankford Arsenal.
- HYDE, W. A. (VI) 1st Lt., A. S. A. Pvt., 1 cl., Aviation Sect., Sig. C., 9 Dec. '17; 2d Lt., A. S. P., 26 Feb. '18; 1st Lt., A. S. A., 26 Oct. '18. In charge of photographic work at Mineola, L. I.; transferred to Science and Research Dept., Washington, D. C., and Langley Field, Va., working on bomb lights, bomb projectories, stabilizers, and stabilized cameras; put on flying status. Disch., 29 July '19.
- KEENAN, J. A. (II) Pvt., A. S. A. Hazelhurst Field, No. 1, Mineola, L. I., 23 Oct. '18; Mitchell Field, No. 2, Garden City, L. I., with 15th Aero Sq. Was refused enlistment on account of age and height in Engr. C., Marine Corps, and Naval Aviation.
- LEVY, E. C. (VI) Maj., M. C. Capt., 11 Aug. '18; Maj., 29 Oct. '18. Camp Epidemiologist, Camp Pike, Ark., 2 Sept. '18—2 Jan. '19.
- McBRIDE, L. B. (XIII) Capt., C. C., U. S. N., A. E. F., July '17—Nov. '19.
- McENTEE, WILLIAM (XIII) Comdr., U. S. N. Cons. Officer, Navy Yard, Washington, D. C.
- MASON, M. E. (V) 1st Lt., C. W. S. Edgewood Arsenal, Md., 28 Sept. '18—21 Dec. '18.
- MOORE, HOWARD (X) Maj., M. C. Capt., 8 Apr. '18; Maj., 17 Feb. '19. A. E. F., 23 July '18—7 Apr. '19; Chief of Orthopedic Service, Base Hosp. No. 44; Chief of Orthopedic Service at Convalescent Camp, Mesves Hosp. Center, Sept. '18; Chief of Surgical Service; in charge of organization of reconstruction work for Mesves Hosp. Center.
- NICKERSON, FREDERIC (IV) 1st Lt., Aviation Sect., Sig. C. Entered Service, Sept. '17. A. E. F., with 53d Aero Sq., 1 Nov. '17; Hq. A. S. at Paris, Dec. '17; Cons. Div., Office of Chief of A. S., Service of Rear; Office of Adj.-Gen., Hq., S. O. S., Apr. '19.
- PHINNEY, R. M. (VI) 1st Lt., Sig. C. Entered Service, 27 Dec. '17. A. E. F., 22 Mch. '18—30 May '19; Supply Officer for 415th Telegraph Bn. building telephone and telegraph lines in France.
- POTTER, N. R. (II) Capt., Tank C. Capt., Ord. O. R. C., 1 Mch. '17; transferred to Tank C., and recommissioned Capt. Jan. '18. Watervliet Arsenal, N. Y., 9 May—30 Aug. '17; Camp Dix, N. J., 2-20 Sept. '17. A. E. F., 1 Nov. '17—1 Mch. '18; England, 1 Mch. '18—29th Oct. '18; Office of Chief of Tank C., Chaumont, 29 Oct. '18—2 Mch. '19.
- RICHARDSON, F. L. W. (IV) Capt., Amer. Red Cross. Bu. of Construction, Paris, France, Nov. '17—18.
- SHAW, G. H. (XI) Lt., U. S. Public Health Service. In charge of health and sanitation of thirty-five Atlantic seaboard shipyards from New York City to Newport News, involving the health and sanitary protective measures of over 100,000 shipyard workers and their families for Emergency Fleet Corp., July '18—July '19.

TECHNOLOGY'S WAR RECORD

- SPILMAN, J. A. (XIII) Comdr., C. C. Hull Div., Navy Yard, Brooklyn, N. Y.
- THURBER, F. B. (II) Lt., U. S. N. Lt. (j. g.), 30 Meh. '17; Lt., 28 Sept. '18. Ex. Officer, U.S.S. Vesuvius, Apr.—15 July '17. C. O., Mine Force, 2d Naval Dist., 15 July '17—10 Apr. '19. Citation, 25 Sept. '17, for assistance rendered after the stranding of the U.S.S. Texas. (Page 251.)
- WADSWORTH, PHILIP (IV) Capt., Ord Corps. Trench Warfare Sect., Engr. Div., Washington, D. C., 6 May—6 Aug. '18; Aberdeen Proving Grounds, Md., 6-16 Aug. A. E. F., 26 Aug. '18—12 Feb. '19.
- WHEAT, G. N. (IV) Capt., Engr. R. C. Entered Service, 25 Sept. '17. A. E. F., 27 Jan. '18—30 Dec. '18; with Director-General of Transportation for five months; with Director of Cons. and Forestry for four months, and with Sect. Engr., Base No. 7 for two months.
- WHIPPLE, L. C. (V) Lt., F. A. A. E. F., with 302d F. A.
- WILSON, F. S. (I) 1st Lt., Engrs. Pvt., Sept. '17; 1st Lt., 16 Aug. '18. Engr. Off. Tr. Sch., Camp Humphreys, Va., 1 Sept. '18; C. O., Co. C, 549th Engrs., 30 Oct. '18—9 Nov. '18; C. O., Co. B, 549th Engrs., 9 Nov. '18—Feb. '19.
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- ABBOTT, A. H. (VI) Capt., Engrs. Detailed to Power Div., War Industries Bd., Nov. '18. See Civilian Record.
- ABBOTT, F. H. (VI) Maj., Engrs. Capt., Aug. '17; Maj., July '19. 304th Engrs., Aug. '17; 128th Engrs., Jan. '18; 144th Engrs., Sept. '19. A. E. F., with 1st Army Corps during campaigns, '18—'19.
- ACKERSON, J. L. (XIII) Comdr., U. S. N. Entered Service, U. S. Naval Academy, 1897; Comdr., Oct. '17. Asst. to General Mgr.; Asst. to Director-General; Asst. General Mgr., and later Vice-Pres., Emergency Fleet Corp., U. S. Shipping Bd., in complete charge of shipbuilding program, June '17—Dec. '19.
- ADAMS, C. W. (II) Maj., A. S. 1st Lt., Aviation Sect., Sig. C., Aug. '17; Capt., Nov.; Maj., July '18. A. E. F., Aug. '17—May '19; A. S. Hq. and Interallied Staff, French G. H. Q. Chevalier of the Legion of Honor.
- ALLEN, R. H. (III) Capt., A. S. P. Dept. of Technical Information, Bu. of Aircraft Production, 28 Aug. '18. Engaged in preparation of specifications for materials and equipment airplanes and balloons, Dayton, Ohio, 11 Nov. '18—11 Mar. '19.
- BABCOCK, C. W. (VI) Ensign, U. S. N. R. F. Entered Service, 11 Apr. '17. Commanding U.S.S. Alacrity, 13 Apr. '17; Watch and Div. Officer, U.S.S. Salem, 14 Jan. '18; U. S. Receiving Ship, Norfolk, Va., 22 Aug. A. E. F., U. S. Destroyer Force, Brest, France, 7 Oct. '18—2 Jan. '19.
- BEARD, R. S. (I) Capt. Q. M. C. Entered Service, 7 Sept. '18; Cons. Div., Washington, D. C., 10 Sept. '18—21 Feb. '19; Officer in Charge Water, Roads, and Drainage, and Utilities Branch, Camp Lee, Va., 21 Feb. '19.
- BELL, R. E. (II) Maj., Q. M. C. Cons. Div., 19 Apr. '18. In charge of organization and methods for cons. of port terminals, hospitals, cantonments, nitrate plants, and flying fields. See Civilian Record.
- BOYDEN, CHARLES (V) (VIII) Capt., Q. M. C. Office, Director of Purchase, Storage, and Traffic, Washington, D. C., 28 Aug.—14 Dec. '18. See Civilian Record.
- BRIDGES, D. W. (VI) Pvt. 1 cl., M. T. C., 8 Nov.—10 Dec. '18. Officer candidate, Co. 12, 1st Road Regt., M. T. C. Off. Tr. Sch., Camp Johnston, Fla.
- BROWN, JAMES S., JR. (II) 1st Lt., Ord. Corps.
- BUNTING, C. K. H. (III) served with British Royal Flying Corps.
- CLARK, W. A. (IX) 1st Lt., Engrs. Pvt., Co. XIII, 1st Off. Tr. Camp, Plattsburg, N. Y., 8 May '17; 1st Lt., Engr. R. C., 15 Aug. 20th Engrs.
- CLARKE, W. D. (I) Capt., Engrs. Entered Service, 19 June '17. 23d Engrs. (Highways), 2 Sept. '17; C. O., Co. L, 23d Engrs., 1 Jan. '18—Feb. '19. A. E. F., 30 Meh. '18—8 June '19; C. O., 4th Bn., 23d Engrs., Feb.—July 19. Meuse-Argonne Offensive (Army Troops), 26 Sept.—11 Nov. '18.
- COHN, A. F. (XIII) 1st Lt., Inf. Entered Service, May '17. 49th Inf., Camp Merritt, N. J., May '17. A. E. F., July '18—Jan. '19.
- DAMON, J. C. (VI) Maj., Engrs. Capt., Engrs., 25 Sept. '17; Maj., 30 Oct. '18. Engr. Off. Tr. Camp, Ft. Leavenworth, Kan., 25 Sept. '17; Hq. Co., 114th Engrs., Camp Beauregard, La., 10 Dec.; Office, Chief of Engrs., Conservation and Control of Power Supply, 9 Jan. '18—31 Jan. '19.
- EADIE, J. C. (VI) Engr. Lt., Royal Navy, Aug. '15. Aegean Sea, '15—'16, North Sea, '16—'17, Mediterranean and Adriatic Seas, '17—'18.
- EDMUNDS, H. M. (VI) Lt. (temporary Capt.), British Inf. Entered Service '09; Scots Guards (Foot). B. E. F., Aug. '15—Meh. '19. Battle of the Somme, Nov.—Dec. '16; Cambrai, 27 Sept. '18; Selle River, 11-13 Oct.; Haussy, 20-21 Oct. Military Cross (British). (Page 146.)
- FLYNN, J. H. (II) Capt., Q. M. C. On special work, organizing a Machine Salvage Unit for rebuilding heavy machinery and rolling stock near the front in France, 16 Aug. '18; in charge salvage and transportation, Salvage Div., Camp Johnston, Fla., for War Dept., Sept.—Dec. '18.
- FOGARTY, W. B. (XIII) Comdr., U. S. N. Naval Constructor, Seattle Construction and Dry Dock Co., supervising cons. for U. S. N.
- FURER, J. A. (XIII) Comdr., C. C., U. S. N. Entered Navy, '97; Bu. Construction and Repair, Navy Dept., Washington, D. C., '17, in charge of design and building of 110-ft. sub-chasers, mine sweepers, and other craft, also production of special war material such as gas masks, splinter mattresses, etc.

REGISTER OF MILITARY RECORDS

- GABRIEL, H. R. (I) Maj., Engrs. Capt., Engrs., Nov. '17; Maj., May '18. 3d Co., Engrs., Ft. Leavenworth, Kan., N. v. '17. A. E. F., Feb. '18; Staff, 1st Bn., 21st Engrs.
- GERAGHTY, T. F. (III) Maj., Ord. Corps. Capt., Ord. Corps., 26 Jan. '18; Maj., 26 Mch. '19. Production Div., Ord. Dept., Washington, D. C., 26 Jan. '18; Production Div., Ord. Dept., Cincinnati Div., 26 Mch. '18; Claims Bd., Baltimore Dist., 26 Jan. '19; Claims Bd., Boston Dist., 26 July '19.
- GRADY, R. C., Comdr., U. S. N. Entered Navy, '02; Lt. Comdr., '17; Comdr., Aug. '18. Navy Dept., Washington, D. C. A. E. F., C. O., American Submarines, Div. 2, Bantry Bay, Ireland, 1 June '18—1 Jan. '19; patrolled southwest coast of Ireland, had several brushes with German submarines. (Page 234.)
- GRAHAM, E. M. (I) Capt., Engrs. Entered Service, Nov. '17. 3d Co., Ft. Leavenworth, Kan.; Co. B, 113th Engrs., Camp Shelby, Hattiesburg, Miss., Dec. '17; Camp Leach, Washington, D. C., Nov. '18.
- GUNN, S. M. (VII) Capt., Amer. Red Cross. Assoc. Director, Comm. for the Prevention of Tuberculosis in France, Rockefeller Foundation; in charge of all educational work of the Comm. and of Bu. of Tuberculosis, American Red Cross. Chevalier of the Legion of Honor, Dec. '18. (Pages 144 and 294.)
- HALL, W. A. (XIII) Comdr., U. S. N. Entered Navy, '02; Lt., July '11; Lt. Comdr., 1 July '17; Comdr., 1 July '18. Asiatic Station, until 15 Oct. '17; Bu. Navigation, Navy Dept., Washington, D. C., 10 Dec. '17.
- HENRY, S. M. (XIII) Capt., C. C., U. S. N.
- HILL, E. B. (IX) C. A. Off. Tr. Camp, 7 Nov. '18.
- HILL, E. L. (II) Capt., Engr. O. R. C., 6 June '17. Not in active service. See Civilian Record.
- HILL, P. G. (II) Capt., Ord. Corps. Entered Service, 20 July '18. Procurement Div., Arty. Sect., Ord. Dept., Washington, D. C.
- HINKLEY, P. E. (II) Maj., Engrs. Capt., Engrs., 15 May '17; Maj., 4 Feb. '18. 20th Engrs. (Forestry). A. E. F., 10 May '18—1 June '19; Regtl. Supply Officer, 20th Engrs., C. O., 10th Bn., 20th Engrs. (Dist. Comdr., Bourges; Dist. Comdr., Pouteux-les-Forges.
- *HOLLIDAY, J. H. (II). See Roll of Honor (page 116).
- JACKSON, H. L. (V) 1st Lt., Sn. C. Entered Service, 21 Aug. '18. Food and Nutrition Sect., Camp Greenleaf. A. E. F., 16 Nov. '18—12 Aug. '19; Dijon, Nov. '18; Mars Hospital Center, Mars-sur-Allier, 10 Dec. '18; Bordeaux Embarkation Camp, Feb. 10, '19; Brest, 15 July '19.
- JEWETT, T. E. (I) Capt., Q. M. C., 3 Apr. '18.
- KEITH, H. H. W. (XIII) Lt. Comdr., C. C., U. S. N. R. F. Lt. (j. g.), 14 Apr. '17; Lt., 10 May '18; Lt. Comdr., 20 Dec. '18. Material Officer and Naval Architect, Boston Navy Yard, Hull Div.; in charge of intensive training given to Tech men sent from Naval Architecture intensive courses; Lecturer at M. I. T. to Annapolis men.
- LAWRENCE, A. W. (V) Pvt., C. W. S. Off. Tr. Sch., Oct. '18. See Civilian Record.
- *LEWIS, H. F. (VIII). See Roll of Honor (pages 90 and 166).
- LONGLEY, F. F. (XI) Col., Engrs. Maj., 27 July '17; Lt. Col., 15 Nov. '17; Col., 1 Oct. '18. A. E. F., Aug. '17—July '19. Aisne-Marne (Château-Thierry) Offensive; St. Mihiel Offensive; Meuse-Argonne Offensive. Distinguished Service Medal. (Pages 140 and 218.)
- LOWE, E. C. (IV) Y. M. C. A. Director, Overseas, Community Motion Picture Bu., in charge of motion pictures for the A. E. F. in France, England, Italy, 15 Jan. '18, later in the occupied territory of Germany. (Page 297.)
- *LOWNDES, A. J. (II). See Roll of Honor (page 110.)
- LUCE, R. F. (I) Lt. Comdr., U. S. N. R. F. Lt., U. S. N. R. F., 24 Sept. '17, transferred from U. S. Coast and Geodetic Survey; Lt. Comdr., 14 Feb. '18. Public Works Dept., Washington (D. C.) Navy Yard, 17 Oct. '17; U. S. S. Madawaska, troop transport, 7 Nov.; Asst. Navigator, 14 Nov.; Navigator, 6 Jan. '18. Made nine round trips to France before the armistice was signed. Transferred back to U. S. Coast and Geodetic Survey, 25 Feb. '19. See Civilian Record.
- MACKIE, MITCHELL (VI) Lt.-Col., M. T. C. Capt., M. T. C., 19 May '17; Maj., 23 Dec.; Lt. Col., 8 May '19. A. E. F., 12 June '17—30 June '19; C. O., Motor Truck Co. 104, 1st Div. Motor Truck Bn.; C. O., Motor Group, Base No. 1; M. T. Officer, Base Sect. No. 1; Officer in Charge of Supply, M. T. C. G. H. Q.; Officer in Charge of Supply, Hq., S. O. S.; C. O., Main Depot, M. T. C.; Officer in Charge of Engr. Branch, office of Director, M. T. C.
- McLEAN, R. W. (II) 1st Lt., Engrs. Entered Service 7 May '17. Resigned July '17, being informed he could be of more service holding old civil position than in Army. See Civilian Record.
- MARCY, G. D'W. (II) Capt., attached General Staff. Entered Service, 29 July '18. Ex. Div., Military Intelligence Branch, office of Chief of Staff, Washington, D. C., 29 July '18; Chief, Military Sect., Morale Branch, G. S., 8 Nov. '18. (Page 282.)
- NEWKIRK, ELIZA J. (IV) Educational Sec., Y. M. C. A.; Member, Staff, Fine Arts Dept., Army Educational Comm., Paris, France, Jan. '19; Guide, for American soldiers on leave; later, with International Y. M. C. A., taught classes in English for Italian men and women, Genoa, Italy, Mch.—July '19.
- NICHOLSON, D. H. (I) Lt., C. E. C. U. S. N. R. F. Naval Air Station, Pensacola, Fla., in charge of contract work under Public Works Officer, on cons. of hangars for seaplanes and dirigibles, barracks, and miscellaneous buildings, 25 Apr. '18.
- O'LEARY, F. A. (I) Lt., C. E. F. In active service on western front for three years; engaged in training troops, New Brunswick Regt. Depot, Seaford South Camp, England, Dec. '17. Wounded, summer '17.

TECHNOLOGY'S WAR RECORD

- ORTSEIFEN, A. J. (XIII) Capt., Q. M. C. Entered Service, 11 Oct. '18. General Supervisor of Cons. and Costs Manchester Munition Plant, St. Louis, Mo., 11 Oct. '18—29 Jan. '19. See Civilian Record.
- PAQUET, V. H. (XIII) Lt., U. S. N. R. F. Ensign, U. S. N. R. F. Lt., Aug. '18. Inactive duty. See Civilian Record.
- PERKINS, G. B. (V) Maj., A. S., attached General Staff. Pvt., 2d Off. Tr. Camp, 26 Aug. '17; 2d Lt. F. A., 23 Nov.; transferred A. S., 4 Mch. '18; 1st Lt., A. S. 11 Apr.; Capt., 26 June; Maj., 23 Oct. '18. Military Intelligence Div., General Staff, 1 Jan. '18; 1st Chief, Military Morale Sect., Aug.; Ex. Officer, Morale Branch, in U. S., Hawaii, Philippines, and with the A. E. F. in Siberia, 1 Oct. '18—6 Oct. '19. (Page 281.)
- RICHMOND, W. S. (I) Capt., Engr. R. C. See Civilian Record.
- ROBBE, L. E. (I) Lt.-Col., C. W. S. Capt., Engr., O. R. C., 2 Sept. '17; Maj., Engrs., 24 Dec.; C. W. S., Aug. '18; Lt.-Col., C. W. S., Feb. '19. Engr. Off. Tr. Camp, 2 Sept. '17. A. E. F., Jan. '18—July '19; C. O., 1st Bn., 30th Engrs., on British front, in great gas attack on Lens, 21 Mch. '18; Inst., Gas Offense, Chaumont; Chief Gas Officer, 1st Corps Hq., Feb. '19; 2d Corps, Mch., and 3d Corps, May in Germany. Lys Defensive; Aisne-Marne, Oise-Aisne, Meuse-Argonne Offensives; Army of Occupation. (Page 171.)
- ROBBINS, H. R. (I) Capt., Military Intelligence Div., General Staff. Hq., Military Intelligence Div., Washington, D. C., 28 June '18; Asst. and Acting Military Attaché, American Legation, Peking, China, 3 Sept. '18—28 Apr. '19; Disch. 18 July '19, and recommissioned Capt., O. R. C.
- RODGERS, C. L. (II) Lt. (j. g.), C. E. C., U. S. N. R. F. Ensign, C. E. C., Bu. of Yards and Docks, U. S. N. R. F., 31 July '18; Lt. (j. g.), June '19. In charge of construction work at Great Lakes Naval Tr. Station. Refused for service in Army and Navy because of defective sight, for over a year, entered the Navy, and on the same day received a captain's commission in Army.
- RUNNELS, S. C. (VII) Maj., M. C. Capt., Med. R. C., 28 July '17; Maj., M. C., 12 Sept. '18. Base Hosp., Camp Sherman, Chillicothe, Ohio. A. E. F., 28 Aug. '18—16 June '19; Argonne, 3 Oct.—11 Nov. '18; Evacuation Hosp. No. 20, Beau Desert, Bourdeaux.
- SCHLABACH, R. P. (XIII) Comdr., C. C., U. S. N. Entered Service, '99; Lt. Comdr., C. C., U. S. N.; Comdr., '18. Naval Constructor, Navy Dept., Washington, D. C.
- SIMMERS, C. M. (XIII) Comdr., C. C., U. S. N. Entered Service, '98; Lt. Comdr., C. C., U. S. N.; Comdr., '19. Navy Yard, Boston, Mass., '17—'18; Cons. of U. S. Supply Ship Bridge and U. S. Fuel Ship Brazos, and conversion of ex-German vessels into troop transports; Bu. Cons. and Repair, Navy Dept., Washington, D. C., design of naval vessels, '18.
- SNOW, E. B., JR. (II) 1st Lt., A. S. P. Entered Service, 2 Jan. '18. General Foreman of Inspection on Liberty Motors, Lincoln Motor Co., Detroit, Mich.; Ordnance Motor Maintenance and Repair School, Camp Karitan, N. J., 6 Nov. '18.
- SPENCER, A. E. (III) 1st Lt., Engrs. Entered Service, 19 Sept. '18. 74th Engrs.
- STAPLES, Z. C. (III) 1st Lt., Chaplains' Corps. Entered Service 22 June '18. With 312th F. A., 5 July '18. A. E. F., France, Luxembourg and Germany; 14 July '18—22 July '19; 312th F. A., 79th Div.; 11th Inf., 5th Div., Luxembourg, 8 May '19; 6th Inf., 5th Div., Army of Occupation, 20 May '19.
- STARR, F. C. (I) Maj., Q. M. C. Capt., Q. M. C., 21 Feb. '18; Maj., 25 July '19. Cons. Q. M., General Hosp., No. 16, New Haven, Conn., and at General Hosp. No. 32 and Field Museum Hospital in Chicago; Supervising Cons. Q. M. of Hospitals; Liaison Officer between Cons. Div. and Surgeon General's Office, and Representative of the Cons. Div. in cancelling hospital leases, May '19.
- STETSON, H. C. (VI) Mr. Elec., C. A. C. Pvt., Mass. C. A. C., N. G., 30 Mch. '17; Asst. Engr. and Engr., May '17; Mr. Elec., June '17; National Guard federalized, 25 July '17; Mr. Elec., 73d Art., C. A. C., 1 July '18. Coast Defense of Boston. A. E. F., 25 Sept.—22 Dec. '18; Zone of Advance.
- STRICKLAND, S. T. (IV) Capt., Military Intelligence Div., General Staff. Washington, D. C., 27 June '18.
- TARBETT, R. E. (XI) Passed Asst. Surgeon, Associate Sanitary Engr., U. S. Public Health Service, Little Rock, Ark., July '13. Extra-Cantonment Zone Sanitation work, having charge of the malaria control work in the area about Camp Pike, and Eberts Field, Ark.
- TOWER, G. S. (XIII) Lt., C. C., U. S. N. R. F. Lt. (j. g.), U. S. N. R. F., 15 May '17; transferred to C. C., U. S. N. R. F., 16 Aug. '18; Lt., 3 Nov. Hull Div., Navy Yard, Boston, Mass., 15 May '17; Asst. Naval Constructor, Navy Yard, Boston, 16 Aug. '18; Asst. Prof. of Naval Architecture, M. I. T., 19 Sept. '18—29 Nov. '19.
- TRUE, A. O. (XI) Capt., Engrs. Entered Service, 26 Sept. '17. 9th Co., Engr. Off. Tr. Camp, Camp Lee, Va.; in charge Water Supply School, Camp Humphreys, Va., 6 Apr. '18; 2d Engr. Tr. Regt., 21 Sept.; Supply Officer and 2d in command, 78th Engrs., Camp Leach, D. C., 19 Oct.; Historical Data Sect., Office Chief of Engrs., Washington, D. C., 15 Dec. '18; Office of Post Utilities Officer, Newport News, Va., 20 Oct. '19.
- TURNER, G. E. (II) Lt.-Col., F. A. West Point, '06; Maj., F. A., '17; Lt.-Col., Oct. '18. Inst., 1st Off. Tr. Camp. A. E. F., Sept. '18—Mch. '19; Staff, 84th Div.; Ord. Officer, Base Sect. No. 1, St. Nazaire, 12 Nov. '18. Meuse-Argonne Offensive, 1—11 Nov. '18.
- WARNOCK, W. H. (I) Capt., Q. M. C. Entered Service, 3 Apr. '18. Field Officer, Camp Stuart, Newport News, Va., 3 Apr. '18; Cons. Q. M., Water Supply Project, 3 Oct. '18.
- WEAVER, E. C. (I) Lt., C. E. C., U. S. N. R. F. Lt. (j. g.), U. S. N. R. F., 24 Mch. '17; Lt. 1 July '18. Asst. to Public Works Officer, Navy Yard, Puget Sound, Wash.

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WILLSON, RUSSELL (I) Comdr., U. S. N., Naval Academy, '02; Lt. Comdr., U. S. N., '17; Comdr., 1 Sept. '17. Navy Dept., Washington, D. C. A. E. F., 1-11 Nov. '18.

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- ADAMS, A. K. (III) 1st Lt., Engrs. Engr. Off. Tr. Sch., 10 Aug. '18; Assigned to 2d Engr. Tr. Regt., 4 Oct. '18, Regt. Police Officer; Personnel Adj. and Inst., Geology and Mineralogy, Engr. School, Camp Humphreys, Va., 7 Apr. '19. See Civilian Record.
- BABB, R. W. (V) W. R. S., U. S. N. R. F. Entered Service, Sept. '17. Wounded, 14 Apr. '18 and invalidated home. On Hospital Ship Old Colony at time of explosion in Halifax.
- BALDWIN, F. G. (II) Maj., F. A. With 323d F. A., 14 May '17; transferred to 1st Bn., 307th F. A., 25 Feb. '18, 2d in Command, 25 Mch.; Regt. Commander, 15 Apr. A. E. F., 29 June '18—16 May '19. Meuse-Argonne Offensive (Bois de Grande Montaigne); Army of Occupation.
- BATCHELDER, F. R. (VI) Pvt. 1 cl., Sig. C. A. E. F., Mch. '18—May '19; with 401st Telegraph Bn., Supply Sect.
- BEERS, H. W. (I) Maj., Q. M. C. Entered Service, 10 Oct. '18. Cons. Q. M., Camp McClellan, Ala. See Civilian Record.
- BLAKE, H. C. (I) Capt., Engrs. With 309th Engrs., Camp Taylor, Ky., 31 Dec. '17. A. E. F., with Co. A. 515th Engrs., June '18.
- BRUCE, A. G. (II) Capt., Engrs. Resigned Commission, Dec. '17.
- BURLEIGH, C. R. (II) 1st Lt., Engrs. 1st Lt., Engr. Off. Tr. Sch., 6 Nov. '18; 2d Engr. Tr. Regt., M. T. C., Camp Humphreys, Va.; Disch., 7 June '19.
- CADY, J. H. (IV) Pvt., F. A. F. A. Off. Tr. Sch., Camp Taylor, Ky., 28 Oct.—6 Dec. '18.
- CARR, S. T. (VI) 2d Lt., C. A. C. 9th Co., Coast Defense of Oahu, Ft. DeRussy, Honolulu, T. H., 21 Feb. '18; Candidate, 2d Co., 4th Off. Tr. Camp, Ft. Monroe, Va., 9 Apr.; 2d Lt., C. A. C., 26 June '18. Student, 5th Off. Anti-Aircraft Arty. Sch., Ft. Monroe, 15 July; Arty. Engr., Coast Defense of New Bedford, Ft. Rodman; Mass., 25 Aug.; Student, Officer Radio School, Columbia University, New York City, 7 Oct. '18—27 Jan. '19.
- CHASE, E. P. (VI) Lt. (j. g.), U. S. N. R. F. C. M. M., U. S. N. R. F., 13 June '17; Lt. (j. g.), 1 Dec. Asst. Electrical Officer, U. S. S. Wyoming, with Grand Fleet, North Sea, 30 Jan.—26 Dec. '18. Present at surrender of High Seas Fleet, 21 Nov. '18.
- COUPER, WILLIAM (I) Lt.-Col., Q. M. C. Maj., Q. M. C., 6 June '17; Lt.-Col., 20 Mch. '18. Office of Engr. Service, Washington, D. C., 22 May—6 June '17; Cons. Q. M., Camp Jackson, S. C.; Supervising Cons. Q. M. with jurisdiction over twelve boat construction contracts, 19 Jan. '18; in charge of cons., North Columbia Cantonment, Columbia, S. C., 13 Oct.; in charge of disposal of surplus materials, and equipment since 12 Dec. '18.
- CUTTING, S. A. (III) 1st Lt., Engrs., Commissioned, 28 Jan. '18. A. E. F., 28 Mch. '18—17 May '19; with 20th Engrs.
- DESTEIGUER, W. G. (III) Capt., A. S. A. 1st Lt., Aviation Sect., Sig. R. C., Apr. '18; Capt., A. S. A., Mch. '19; 2d Off. Tr. Camp., Ft. Sheridan, Ill., Jan. '18.; Taliaferro Field, No. 3, Ft. Worth, Texas, Apr. '18; Chief Engr. Officer, Caruthers Field, Ft. Worth, Texas, Mch. '19.
- FALLON, NUGENT (I) Lt. Comdr., U. S. N. R. F. (A). Ensign, U. S. N. R. F., 9 May '17; Lt. (j. g.), Mch. '18; Lt., June '18; Lt. Comdr., Oct. '18. A. E. F.; attached to French Service and to Royal Air Force as Pilot. Five engagements. Cited for Navy Cross. Mentioned in dispatches to the Admiralty (British). (Page 243.)
- FLETCHER, H. V. (II) Capt., Engrs. 1st Lt., 15 Sept. '17; Capt., 7 May '19. 32d Engrs. and 121st Engrs. A. E. F., 15 June '18—15 July '19; Statistical Officer for Sect. Engr., Base Sect. No. 2, 15 July '18—30 June '19.
- FOGG, C. E. (I) Lt. M. C., U. S. N. Lt. (j. g.), 26 Mch. '17; Lt., 29 Mch. '18. Senior Medical Officer, U. S. N. Patrol Base, Portland, Maine, 26 Mch. '17—3 May '18; Surgeon, Senior Medical Officer, U. S. N. Training Camp, Hingham, Mass., 3 May '18—8 May '19; Medical Officer, U. S. S. Sierra, 8 May—1 Oct. '19; Asst. Medical Officer, U. S. Naval Hospital, Portsmouth, N. H., 1 Oct.—17 Nov. '19.
- FOSTER, W. H., 1st Lt., Amer. Red Cross. Member, Red Cross Commission to the Balkan States.
- FULLER, F. M. (II) Lt., U. S. N. R. F. Lt. (j. g.), 29 Dec. '17; Lt. 2 Nov. '18. Bu. of Ord., Washington, D. C., 22 Jan.—11 Feb. '18; Asst. Inspector of Ord., Bethlehem Dist., Bethlehem Steel Works, S. Bethlehem, Pa., 11 Feb. '18—1 June '19.
- GARDNER, R. S. (XIII) Lt. Comdr., U. S. N. R. F. Bu. of Cons. and Repair; Dist. Salvage Officer, Northern Dist., Naval Salvage Service, New London, Conn.
- GATEWOOD, R. D. (XIII) Comdr., C. C., U. S. N. Supt., Mechanical Div., Panama Canal, in charge of all shops and dry docks, Panama Canal and Panama Railroad throughout the war.
- GLADDING, J. N. (II) Capt., Engrs. Commissioned, 27 Sept. '17. Hq., 3d Div., Co. B and Co. C, 6th Engrs.; Co. F, 316th Engrs. A. E. F., 17 Mch. '18—15 Apr. '19. Champagne-Marne Defensive (Château-Thierry); Aisne-Marne Offensive; Meuse-Argonne Offensive, Army of Occupation.
- HALLOWELL, H. B. (III) Capt., Ord. Corps. Entered Service, 15 Jan. '18. Production Officer, Minneapolis Steel and Machinery Co., Minneapolis, Minn., 10 Feb. '18; Production Officer, Twin Cities Dist.; Asst. Mgr., Chicago Dist., Ord. Salvage Bd., 19 Jan. '19.

TECHNOLOGY'S WAR RECORD

- HEMPHILL, A. W. (II) Lt., F. A. O. R. C. Entered Service, 29 Aug. '18; 1st Lt., F. A. O. R. C., 4 Dec. '18. See Civilian Record.
- HENDERSON, G. M. (III) Capt., Engrs. 1st Lt., Engr. R. C., Co. A, 306th Engrs., Dec. '17. A. E. F., with 33d Engrs., Feb. '19.
- *HEUTER, R. R. (II). See Roll of Honor (page 127).
- HILL, GUY (VIII) Capt., Sig. C. Entered Service, 4 May '18. Radio Development Sect., A. E. F., 30 June '18—14 Feb. '19; with Research and Inspection Div., Sig. C., Paris. See Civilian Record.
- HINCKLEY, T. L. (XI) Capt. F. A. Lt., F. A., 27 Nov. '17; Capt., 1 May '19. A. E. F., 27 Mech. '18—Dec. '19; attached 315th F. A. and to Administrative Sect., S. O. S., in charge of all payments to French on account of billeting of C. S. troops, June '18—July '19.
- HOBSON, G. F. (I) Maj., Engrs. Capt., Engrs., 8 May '17; Maj., 28 Aug. '18. 305th Engrs., Camp Lee, Va., Aug. '17—May '18. A. E. F., May—Aug. '18. C. O., 3diBn., 7th Engr. Tr. Regt., Camp Humphreys, Va., Aug.—Nov. '18; General Staff, U. S. A., 2 Nov.—6 Dec. '18. Somme Offensive.
- *HONEYMAN, B. R. (IV). See Roll of Honor (page 108).
- HOSMER, W. W., JR., Sgt., Engrs. Pvt., Engrs. (Ry.), 5 June '17; Sgt., 12 June '17. A. E. F., 1 Aug. '17—22 Apr. '19, with 16th Engrs. (Ry.). Lys Defensive with British Army, 9-27 Apr. '18; Meuse-Argonne Offensive, 5 Oct.—11 Nov. '18. (Page 223.)
- HYDE, E. R. (I) Capt., Engrs. Asst. to Dept. Engr., Manila, P. I., 1 Jan. '18; Engr. Off. Tr. Sch., Camp Humphreys, Va., Oct. '18; Inst., Camp Humphreys, Dec. '18—Aug. '19.
- KEARNEY, STEPHEN (I) Capt., Engrs., 216th Engrs. Camp Lee, Va., 25 May—28 July '18; Camp Humphreys, Va., 28 July—20 Oct. '18; Camp Kearney, Calif., 27 Oct.—4 Dec. '18.
- KENNEDY, R. G. (II) 2d Lt., F. A. Entered Service, 10 Apr. '17; Pvt.; Corp.; Sgt.; 3d Lt., 5 Dec. '17. A. E. F., 14 June '18—2 Aug. '19, 106th F. A.; Renting, Requisitions and Claims Service after 2 Oct. '18.
- KIDDER, J. H., Capt., Ord., Corps. Rifle Demonstrator, assigned to Camp Greene, N. C., June '18; transferred to 19th Div., Camp Dodge, Iowa, Aug. '18; after course at Eddystone Rifle Plant, sent out to demonstrate the new 1917 rifle.
- LAWTON, J. T., JR. (II) Maj., Engrs. Capt., 25 Sept. '17; Maj., 25 Sept. '18. Off. Tr. Camp, American University, Washington, D. C.; General Engr. Depot, Production Div., Corps of Engrs., 26 Nov. '17; in charge of Building and Miscellaneous Sect.; Asst. Chief of Production Div.; in charge Procurement Branch, Equipment Sect., Troop Div., Office of Chief of Engrs., Feb. '19; represented Corps of Engrs. on Fire Prevention Sect., War Industries Bd.; Member, Comm. on Standardization of Mechanical Rubber Goods and various boards in the office of Chief of Engrs.; Member, Contract Review Bd., Sales Control Bd., and Appraisal Bd., Bd. of Claims, and Contracting Officer for Corps of Engrs.
- LEEDS, C. T. (I) Maj., Engrs. Capt., U. S. Dist. Engr. 7 Apr. '17; Maj. 11 Oct. '18. U. S. Dist. Engr., Los Angeles, Calif., in charge of river and harbor work and recruiting troops, 16 Apr. '17—10 July '19; Prof. of Military Science and Tactics and in command of S. A. T. C., Throop College (California Institute) of Technology, Pasadena, Calif., 23 Aug. '17—4 Nov. '18.
- LIBBEY, F. W. (III) Lt., Engrs. Engr. Off. Tr. Sch., Camp Humphreys, Va., 28 Oct. '18.
- LORING, C. G. (IV) Capt., A. S. 1st Lt., 11 Jan. '18; Capt., 15 Oct. '18. A. E. F., Feb.—23 Dec. '18; Chief of Designs and Projects Div., A. S., in charge of selection of airdrome sites, obtaining approval from G. H. Q. and French G. H. Q. and transfer from civilian owners; prepared plans and superintended their development. (Page 220.)
- MANN, P. F. (IV) Capt., F. A. Camp Wadsworth, Spartanburg, S. C., Nov. '17. A. E. F., Btry. A, 106th F. A., Mch. '18; transferred S. O. S., Tours, Mch. '19.
- MAXFIELD, L. H. (XIII) Comdr., U. S. N. (A.). Entered Service, June '03; Midshipman to Comdr., '03—'10. Trained pilot, Akron, Ohio, and commanded Dirigible Station Paimboeuf, France. Chevalier, Legion of Honor; Life Saving Medal of the French Navy.
- MAYBERRY, E. L. (IV) Capt., Engrs. Entered Service, Nov. '17; Capt., Engrs., 14 May '17.
- MEANS, J. H. (II) Maj., M. C. 1st Lt., 7 June '17; Capt., 2 Nov. '17; Maj., 14 Nov. '18. A. E. F., 11 July '17—2 Mch. '19; Adj., Base Hosp. 6, 30 Aug. '17—14 May '18; temporary duty in Office of Chief Surgeon, Amer. Hq., London, until Sept. '18; engaged in work on the influenza epidemic, Sept.—Oct. '18; engaged in debarkation American forces, 11 Nov. '18—8 Jan. '19; Base Hosp. 6, 8 Jan.—14 Feb. '19.
- MERRIAM, C. A. (II) Capt., Engrs. Entered Service, 23 June '17. Engr. Off. Tr. Camp, Camp Lee, Va., Dec. '17—Mch. '18; Cons. Div., Mch. '18; Chief Asst. Constructing Officer in charge of field work in cons. of the Tullytown Bag Loading Plant, Tullytown, Pa., Mch. '18—Jan. '19.
- MILLER, C. E., JR. (XIII) Lt. (i.g.), U. S. N. R. F. Midshipman, U. S. N. R. F.; Ensign, 1 Feb. '18; Lt. (j.g.). Naval Academy, Annapolis, Md.; U. S. S. South Dakota, cruising to and from France, Oct. '18.
- MORRIS, J. M. (VI) Capt., Engrs., Commissioned, 8 May '17.
- ORME, J. B. L. (V) Maj. Ord. R. C. Capt., Ord. Corps, 1 June '17; Maj., Ord. R. C., Watervliet Arsenal, Troy, N. Y., July—Aug. '17; Camp Ord. Officer, 36 Div., Camp Bowie, Fort Worth, Texas, 27 Aug. '17—Feb. '18; Office of Chief of Ord., in charge matters relating to small arms ammunition, then explosive components for grenades; later in charge of inspection and engineering for loading powder in all ammunition, Feb. '18—31 July '19.

REGISTER OF MILITARY RECORDS

- PITKIN, J. S. (IV) Capt., Military Intelligence Div., General Staff. Chief Personnel Officer, 3 Sept. '18—5 Mch. '19.
- POLLISTER, E. B. (I) Capt., Engrs. 1st Lt., 11 Dec. '17; 2d Lt., 27 Aug. '17; Capt., 12 July '18. With Co. F, 110th Engrs., 28 Aug. '17—26 Sept. '18. A. E. F., 26 Sept. '18—19 July '19; Co. F held record for fast construction of standard Adrian barracks, Camp Pontanezen.
- RICHARDSON, H. C. (XIII) Comdr., C. C., U. S. N. Entered Service, 8 Sept. '07. Construction Officer, Naval Air Station, Pensacola, Fla., in charge of erection and maintenance of aircraft; associated in experimental development of aircraft and catapult launching device, Dec. '16—Mch. '18; superintending construction of Curtiss Aeroplane and Motor Corp., Buffalo, N. Y., in charge of inspection of aircraft in Buffalo Dist., Mch. '18—Mch. '19; associated in design of NC flying boats and Pilot NC-3, flight 16 May '19. (Page 244.)
- RILEY, J. G. (V) Maj., Sn. C. Capt., Sn. C. Food Div., Surgeon-General's Office, Washington, D. C., Jan. '18; with Hosp. Unit 40, M. C., Knotty Ash., Liverpool, Eng., engaged in provisioning British ships used to bring back the returning army, Mch. '19; Member of committee of American officers in England provisioning ships and inspecting food, 22 Mch. '19.
- ROOT, J. A. (III) Capt., Ord. Corps. Entered Service, 22 Nov. '17. Small Arms Div., Inspection Div. and Explosives, Chemical and Loading Div.; Asst. to Army Inspector of Ord., Peters Cartridge Co., Kings Mills, Ohio, Dec. '17—Oct. '18; Asst. Supervisor of ballistic and chemical testing of ammunition; Army Inspector of Ord., Old Hickory Powder Plant, Nashville, Tenn., Oct. '18—15 July '19. (Page 264.)
- ROSE, R. W. (XIII) Lt., U. S. N. R. F. Sea. 2 cl., 1 Feb. '16; B. M., 2 cl., 1 Mch. '16; Ensign, Naval Militia, Mass., 21 Mch. '17; Ensign, N. V. V., 10 May '17; Lt. (j.g.), Naval Volunteers, 8 Jan. '18; Lt. (j.g.), U. S. N. R. F., 1 July '18; Lt., U. S. N. R. F., 14 Mch. '19. U.S.S. Georgia, 6 May '17—1 Sept. '18; U.S.S. Relief, 1 Sept. '18—15 May '19.
- SMITH, L. D. (XIII) Candidate, Off. Tr. Sch., Ft. Sheridan, Ill. Entered Service, 15 July '18. Recommended for commission, 15 Sept. '18, but was returned to finish medical course at Marquette Medical School.
- STEINHARTER, E. C. (VII) Lt., M. R. C. Base Hosp 76, 11 July '18; Camp Devens, Mass., 11 July—1 Sept. '18. A.E.F., 23 Sept. '18—11 July '19 at Vichy and Camp Pontanezen. See Civilian Record.
- *STEPHENS, A. L. (III). See Roll of Honor (page 120).
- TILLSON, P. E. (VI) Lt., U. S. N. R. F. Entered Service, 6 Apr. '17. Communication and Information Duty, Philadelphia Navy Yard, and Aide for Information, Cape May Sect. Base, 4th Naval Dist., 6 Apr.—1 Nov. '17; Electrical Officer, U.S.S. Maine, Atlantic Fleet, 1 Nov.—1 June '18; Electrical and Fire Control Duties, U.S.S. Florida, North Sea Service with base at Scapa Flow, 4 July '18—30 Jan. '19. Took part in surrender of German High Seas Fleet (page 238).
- TRIPP, L. H. (II) Maj., Q. M. C. Capt., Q. M. C.; Maj., 18 Mch. '18. Head of the Heating and Plumbing Sect., Engr. Div. of Cons. Div., responsible for design, plans, specifications, and estimates for heating, plumbing, cooking and baking equipment for camps, cantonments, hospitals, and terminals. 1 June '17 to Oct. '19.
- VAN AMRINGE, W. M. (X) Candidate, U. S. N. R. F. (A). Naval Aviation School for Pilots, M. I. T., Cambridge, Mass. Entered Service, 6 Nov. '18.
- WEBSTER, L. B. (VII) Capt., Ord. Corps. Entered Service, Oct. '17.
- WHEELER, K. W. Ensign, U. S. N. R. F. C. M. M., U. S. N., Apr. '18. Navy Recruiting Station, Fresno, Calif., Apr. '18. U.S.S. West Corum. Placed on inactive duty, 10 June '19.
- WHITE, W. W., 2d Lt., A. S. Pvt., 1 cl., Nov. '17; 2d Lt., Sig. R. C., A. S., Jan. '18. Supply and Mess Officer, 217th Aero Sq., Kelly Field, Texas Jan.—3 Mch. '18; Police Officer, Group A, Mitchell Field, N.Y., 7 Mch. '18—Jan. '19.

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- ALVEY, J. P., JR. (I) Capt., Engrs. 1st Lt., Q. M. C., Apr. '18; Capt., Engrs., Apr. '19. A. E. F., July '18—July '19, C. O., Fuel Service Unit 10, 5th Corps; in timber supply work in the Vosges and Lorraine, July '18; in charge of outside constructing and road work, Base Sec. IV, and in British Area (Departments of Seine Inferieur, Somme, Pas de Calais and Nord). Oct.; in charge of all engr and liquidation, same area, Apr. '19.
- BARRY, J. G., Inst., Dept. of Geology, M. I. T. Lt.-Col., C. W. S., 1st Lt., C. W. S., 28 Sept. '17; Maj., 13 July '18; Lt.-Col., 14 Feb. '19. Entered Service, 5 Jan. '18. A. E. F., 10 Feb. '18—30 June '19; in charge of gas defense, A. E. F., under Chief of C. W. S.; Personnel Officer, C. W. S. Personal letter of thanks from Comdr-in-Chief.
- *BATES, ORIC. See Roll of Honor (page 119).
- BINGHAM, RUTHERFORD (VI) reported Capt. Inf.
- BONTA, EDWIN (IV) Sec., Y. M. C. A. Unit to Russia, Dec. '17; worked in Moscow, Petrograd and Nijni Novgorod under Bolsheviki, May—Sept. '18; left Soviet Russia through Sweden and Norway, 1 Sept. '18; Archangel until June '19. (Page 299.)
- CARPENTER, W. T. (XI) Capt., Sn. C. 1st Lt., Sn. C., Nov. '17; Capt., Feb. '18. Jacksonville, Fla.
- CONOVER, H. B. (VI) reported Lt., A. S. A.
- COUPAL, J. S. (III) Pvt., Engr., Off. Tr. Camp. Entered Service, Nov. '18; to have been commissioned 1st Lt. when armistice was signed. See Civilian Record.

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- CROHURST, H. R. (XI) Capt., Sn. Engr. Div., Public Health Service. 2d Lt., 23 Aug. '14; 1st Lt., 1 May '18 Capt., 1 Mch. '19. In charge of drainage work for mosquito elimination, Camp Bowie Zone, Fort Worth, and of Camp Logan Zone, Houston, Texas, and of operation of water filtration plant, Camp Bowie Zone.
- CULLMORE, A. R. (I) Maj., Sn. C. Entered Service, 27 Aug. '18. Chief of the Educational Service, in charge of readjustment and rehabilitation of wounded soldiers, Letterman Hosp., The Presidio, San Francisco, Calif., acted as Consultant for Army hospitals west of Denver; Dean of Engineering, Delaware College, Newark, Del.
- DANIELS, F. E. (VII) Capt., Sn. C. Camp Sn. Engr., Camp Greene, N. C., 19 Dec. '17; Camp Sn. Engr. Camp Lee, Va., July '18—30 Apr. '19.
- DAVIS, L. R. (III) Capt., A. S. P. Candidate, 2d Off. Tr. Camp, Presidio, San Francisco, Calif., 25 Aug. '17; Capt., A. S. P., 8 Nov. '17. Training troops, Spruce Production Div., Vancouver Barracks, Wash., 20 Nov. '17; Senior Inst., Divisional Officer's School, 1 June '18; C. O. of logging troops constructing railroads and mills, on Olympic Peninsula, Wash., 10 July '18—20 Jan. '19.
- DEMIPWOLF, F. G. (IV) Capt., Ord. Corps. 1st Lt., Ord. Corps., 1 Jan. '18; Capt., Feb. '19. Attached to A. S. and trained at Langley Field and Washington. A. E. F., Feb. '18—Mch. '19, studying and reporting on French and English methods of arming airplanes for pursuit, observation, and bombing purposes, and on all items of aviation armament; head of one sect. of Aircraft Armament Div.
- DODGE, P. VAN P. (II) Maj. Ord. Corps. Candidate, 1st Off. Tr. Camp, 14 May '17; 1st Lt., Ord. Corps., N. A., 15 Aug.; Capt., 23 Jan. '18; Maj., 30 Oct. 1st Inf. Co., 5th Prov. Tr. Regt., Ft. Myer, Va., 14 May '17; Asst. Contract Officer, Small Arms Div., Ord. Dept., 23 Aug.; in charge of machine-gun contracts, Procurement Div., Contract Sect., 18 Jan. '18; Engr. Div., Small Arms Sect., 19 Mch. '18—2 June '19.
- EATON, C. A. (II) Maj., Ord. Corps. In charge of inspection of fuses, primers, adapters, and boosters for artillery ammunition, Inspection Div., Ord. Dept., Washington, D. C., 20 Apr. '18; in charge of inspection of all artillery ammunition, July; with Engr. Div. redesigning adapters and boosters for gas shells, Aug.—20 Dec. '18. See Civilian Record.
- EVANS, JOHN (VI) Capt., Inf. Provost Marshal of Colo., 4 Dec. '17; Chief, Administrative Bu., Office of the Provost Marshal-General, Washington, D. C., Oct.—5 Dec. '18. See Civilian Record.
- EVERETT, CHARLES (IV) 1st Lt., Military Intelligence Div., General Staff. In Washington, D. C., 14 Mch.—1 Nov. '18; in New York City, censoring mail of German prisoners of war in this country and extracting from such correspondence material of intelligence value.
- FISHER, H. E. (II) Pvt., Inf., Acting Corp., Co. A. S. A. T. C., Harvard University, 11 Oct.—4 Dec. '18. See Civilian Record.
- GODFREY, S. C. (IV) Col. (T.), Engrs. Grad., U. S. Military Academy, '09; Capt., Engrs. '15; Maj. (T.), 26 Oct. '17; Lt.-Col. (T.), 3 Jan. '18; Col. (T.), 1 Aug. '18; Maj., Engrs., 10 Sept. '19. Inst., later Senior Instr., Off. Tr. Camp, Ft. Leavenworth, Kan., 30 June '17; 318th Engrs. Vancouver Barracks, Wash., 30 Dec. A. E. F., 25 May '18—Aug. '19; C. O., 318th Engrs., Gievres, France, Engr. Personnel Officer of A. E. F., Tours, 24 July '18; Asst. to Chief Engr., 1st Army, Souilly, 31 Oct. Ex. Officer to Chief Engr., 3d Army, 18 Nov.; Div. Engr., 2d Div. Engrs.; C. O., 2d Engrs., 17 Apr. '19. Asst. to Dist. Engr., Wilson Dam, Florence, Ala., 31 Aug. Meuse-Argonne Offensive, Army of Occupation. Letter of commendation from Chief of Engrs., A. E. F. (Page 224.)
- HALL, S. B. (VIII) Capt., F. A. 1st Lt., F. A., 15 May '17; Capt., 15 Aug. 301st Am. Tn., Camp Devens, Mass., 29 Aug. '17. A. E. F., 12 July '18—23 Feb. '19; Submarine attack, 30 July '18; 301st Am. Tn., 76th Div., St. Aignan, France; 116th Am. Tr., 1 Jan. '19.
- HAMNER, E. C. JR. (XIII) Comdr., C. C., U. S. N. Entered Service, '07; Industrial Mgr., Naval Station, New Orleans, La., and of 8th Naval Dist.; Superintending Constructor, Alabama Dry Dock and Shipbuilding Co., during the war; Fleet Constructor, Atlantic Fleet, U. S. S. Pennsylvania, Jan. '19.
- HASTINGS, H. B. (I) Pvt., Inf., S. A. T. C., Presidio of San Francisco, Calif., 18 July—16 Sept. '18. See Civilian Record.
- HOSMER, H. B. (VI) Capt., C. A. C. Commissioned, 15 Aug. '17. 1st Off. Tr. Camp, Plattsburg, N. Y., 11 May '17; Ft. Monroe, Va., 6 June '17; 10th Co., Coast Defense of Boston, 29 Aug.; Net Officer for Boston Harbor; C. O., Btry. A, 71st Arty., 12 May '18. A. E. F., 31 July '18—22 Feb. '19; Hvy. Arty. Sch. Angers.
- JOHNSON, J. E. (I) 1st Lt., Engrs. 1st Off. Tr. Camp, 14 Apr. '17; Co. F, 309th Engrs., 84th Div., 27 Aug.; Inst. in Topography, 84th Div. Engr. School, Dec.; C. O., Co. F, 309th Engrs., Aug. '18. A. E. F., 8 Sept. '18—8 July '19; Regtl. Personnel Officer, 309th Engrs., 10 Jan. '18; in charge of field work in cons., maintenance, and operation of sewer systems in St. Nazaire and surrounding camps, under Sr. Engr. Officer, S. O. S., 10 Feb. '19.
- *JONES, G. R. (XI). See Roll of Honor (page 124).
- KELLY, E. F. (II) 1st Lt., Engrs. 1st Tr. Camp; Co. F, 301st Engrs., Camp Devens, Mass., Dec. '17. A. E. F., 8 Oct. '18.
- KEPHART, S. A. (VI) Col., C. A. C. Cadet, U. S. Military Academy, '88; 2d Lt., C. A. C., '92; 1st Lt., 2 Mch. '99; Capt., July '01; Maj., 10 Sept. '09; Lt.-Col., 1 July '16; Col. 22 Aug. '19. Canal Zone, Jan. '18. A. E. F., France, '19.
- LAND, E. S. (XIII) Comdr., C. C., U. S. N. Entered Service, 9 Sept. '98. Navy Dept., Washington, D. C., 6 Apr. '17—1 Aug. '18. A. E. F., 12 Aug. '18—29 June '19; Great Britain, France, Italy, Austria, Germany;

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- general submarine work and submarine inspection; special detail to Austria; Member, Allied Naval Arm stice Comm., to Germany on H.M.S. Hercules, Dec. '18. Awarded Navy Cross.
- LANGENHEIM, F. E. (I) Capt., Ord. Corps.** Ord. Dept., Washington, D. C., 10 Oct. '17; Rock Island Arsenal, 15 Dec.; Camp Hancock, Ga., to Jan. '18. See Civilian Record.
- LEAVELL, J. H. (III) Maj., Engrs.** Capt., Engrs., Apr. '17; Maj., 16 May '19. Presidio, San Francisco, Calif., Apr. '17; 316th Engrs., Camp Lewis. A. E. F., June '18—July '19; in charge of Public Utilities, American Occupied Territory; attended Inter-Allied Coal Comm.; had charge of allotment of coal in American Occupied Territory. Ypres-Lys Offensive; St. Mihiel Offensive; Meuse-Argonne Offensive; Army of Occupation. Distinguished Service Cross; Croix de Guerre with Gold Star. (Pages 134 and 224.)
- LEWIS, E. F. (IV) 1st Lt., A. S.** Commissioned, 27 Aug. '17. Off. Tr. Camp, Plattsburg, N. Y., Apr. '17; Kelly Field, Texas, 11 Nov.; Camp Sevier, S. C., 3 Jan. '18. A. E. F., England, 21 Aug. '18—2 Apr. '19; C. O., 16th Aero Cons. Squadron, building bombing stations for U. S. Air Force on coast; squadron transferred to Engrs. Built warehouses and storage depot after armistice.
- MACOMBER, ALEXANDER (VI) Maj., Engrs.** Capt., Engrs., 8 May '17; Maj., 23 Mch. '18. 1st Off. Tr. Camp, Plattsburg, N. Y., 8 May '17; development of Searchlights for Field Service, War Dept., Washington, D. C., 28 July; organizing and training personnel for Searchlight Troops, Washington Barracks, 7 Nov. A. E. F., June '18—May '19; 56th Engrs. (Searchlight). Served with French and British Armies and with 1st American Army. St. Mihiel Offensive, Meuse-Argonne Offensive. Unit Citation from Chief of Engrs., A. E. F. (Page 272.)
- MCRAE, H. C. (XI) 1st Lt., Engrs.** 306th Engrs., Nov. '17; Engr. Repl. Regt., Vancouver Barracks, Wash., Mch. '18. A. E. F., with 45th Engrs.
- MATHER, JOHN (VI) Lt.-Col., C. A. C.** Entered Service, '08; Maj., C. A. C., '17; Lt.-Col., 60th Arty. (Hv.), A. E. F., Apr. '18—May '19; Office of Chief of Arty., G. H. Q., in charge of instruction of Hv. Arty. Units, Meuse-Argonne Offensive.
- MIDDLETON, N. A. (II) Maj., Engrs.** Candidate, 25 Aug. '17. Capt., Engrs.; Maj., 2 Oct. '18. 2d Off. Tr. Camp, Plattsburg, N. Y., 25 Aug. '17; Engr. Off. Tr. Camp, Washington, D. C.; Purchasing Div., General Engr. Depot, Washington, D. C., 25 Nov. '17; Bn. Adj., 23d Engrs., 10 Feb. '18; Regt. Adj., 12 July. A. E. F., 30 Mch. '18—July '19; C. O., 3d Bn., 23d Engrs., 2 Oct. '18; constructing railroad yards, depots, and hospitals, water supply and dock work, also railroad and road maintenance at the front. St. Mihiel Offensive; Meuse-Argonne Offensive. (Pages 4 and 222.)
- MORELAND, E. L. (VI) Maj., Engrs.** Capt., Engrs., 10 Aug. '18; Maj., 10 Apr. '19. A. E. F., 8 Sept. '18—19 Apr. '19; Technical Bd., 8 Sept. '18; Technical Ex. of Engr. Dept., War Damage Bd., 10 Dec.
- NORTON, G. R. (II) Lt.-Col., Ord. Corps.** Entered Service, '08; Capt., Ord. Corps., '17; Maj., June '17; Lt.-Col., Jan. '18. Asst. Chief of Supply Div., Ord. Office, Washington, D. C. A. E. F., June '18—Dec. '18; Hq., S. O. S. Citation for especially meritorious service from Chief Ordnance Officer, A. E. F.
- PAGON, W. W. (I) Capt. Cons. Div. of the Army,** 14 Feb. '18—15 Mch. '19. At Camp Meade, Md., and Curtis Bay Ord. Depot, Md. See Civilian Record.
- PASTORIZA, H. G. (VI) Maj., Ord. Corps.** Carriage Div., May '18. A. E. F., Carriage Div., Seacoast Sect.; Office of Chief Ord. Officer, Tours.
- PEABODY, O. L. (X) Pvt., C. W. S. U. S. Gas School,** 2 Aug. '18.
- PEASE, M. H. (VI) Maj., Engrs.** Capt., Engrs., 15 May '17; Maj., 1 Nov. '18. Adj. 2d Bn., 301st Engrs., Camp Devens, 1 Sept. '17. A. E. F., 28 June '18—21 Apr. '19. Corps Engrs., 4th Corps. St. Mihiel Offensive; Toul Sector; Army of Occupation.
- PERRY, W. G. (IV) Capt., A. S.** 1st Lt., Aviation Sect., Sig. C., 1 Nov. '17; Capt., 1 Aug. '18; transferred A. S. 14 Oct. '18. C. O., 477th Aero Sq., 1 Nov. '17. A. E. F., 4 Mch. '18—25 Apr. '19; constructed flying fields of Autreville (Vosges), Amanty, Biqueley and St. Mihiel (Meuse); Equipment Officer, 1st Army A. S., 14 Oct. '18. St. Mihiel Offensive; Meuse-Argonne Offensive; temporary duty Army of Occupation, 21 Nov. '18. Cited in G. O. 30, Office of 1st Army Air Service Commander, 26 Nov. '18. (Page 156.)
- POTTER, O. W. (I) Capt., Inf.** Presidio, San Francisco, Calif., Nov. '17; 363d Inf., Camp Lewis, Washington, May '18. A. E. F., with 91st Div. Oct. '18.
- PULTZ, J. L., Lt., U. S. N. R. F.** C. Q. M., 18 Feb. '18; Ensign, 28 June '18; Lt. (j. g.), U. S. N. R. F. (A.), 1 Oct. '18; Lt., 1 Jan. '19. Naval Aviation Detachment, M. I. T., Feb. '18; Naval Air Station, Pensacola, Fla., June; released from active duty, 5 Dec. '18.
- RAND, ROBERT (II) Lt., U. S. N. R. F.** Lt. (j. g.), U. S. N. R. F., 6 Apr. '17; Lt., 28 Sept. '18. Charlestown Navy Yard, 6 Apr. '17. A. E. F., 26 Oct. '17—11 Mch. '19; U. S. Naval Hq., London, England, 26 Oct. '17; U. S. Naval Base, Bordeaux, France, 10 Nov. '17; U. S. Naval Hq., Paris, 27 Nov.; U. S. Naval Hq., London, 29 Apr. '18; Staff of Admiral Sims, 26 Feb. '19.
- REED, JAMES (XIII) Comdr., C. C., U. S. N.** U. S. Naval Academy, Sept. '08; New Work Supt., Mare Island Navy Yard, Calif., '17, on construction of Destroyers Caldwell, Fairfax, Taylor, Ward, Boggs, Kilty, Nos. 140, 141, and 337 to 341 inclusive, and Battleship California. (Page 249.)
- RICHARDSON, E. C. (II) 1st Lt., Inf.** A. E. F., Feb. '19; Co. M, 146th Inf., 37th Div.
- SAGE, W. H., JR. (I) Col., Engrs.** Entered Service, '04; Maj., Engrs., Aug. '07; Lt. Col., Jan. '18; Col., Aug. '18. Organized 601st Engrs. A. E. F., 30 June '18—June '19; 1st Army Hq., Aug. '18; C. O., 112th Engrs., 37th Div., 25 Sept.; Member, Mission to Assess War Damages in Serbia, Jan. '19; C. O., 315th Engrs., Mch. '19.

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- Aisne-Marn: Offensive (Château-Thierry); St. Mihiel Offensive; Pannes Sector; Meuse-Argonne Offensive; Ypres-Lys Offensive. Wounded at Denterghem, Belgium, 29 Oct. '18. Belgian Croix de Guerre; French Croix de Guerre with Palm. Chevalier of the Legion of Honor.
- SARGENT, E. H. (I) Capt., Engrs., Off. Tr. Camp, 17 May '17; 20th Engrs. (Forestry), Washington, D. C., Sept. A. E. F., Feb. '18—Jan. '19; Adj., 116th Engrs.; on Staff of Chief Engr. A. E. F., Installation of electric light and power, May '18.
- TYLEE, A. K. (VI) Lt.-Col., Royal Air Force. Lt. Flying Officer, '15; Capt. (Flight Comdr.), Jan. '17; Maj., 17 Mch. '17; Lt.-Col., Royal Air Force, 11 Apr. '18. Curtiss School, Toronto, Canada, '15; with 12th and 35th Squadrons, England; in France, Mch. '16; in French Hospital, Aug. '16; returned to 31st Sq., England; with 65th Sq. and 48th Sq.; in command, 81st Canadian Tr. Sq., Mch. '17; in command, Camp Borden, Ontario, Canada; took personnel of Camp, 5 Sq., to Camp Everman, Ft. Worth, Texas, Nov. '17; returned to England, Mch. '19. Demobilized, 1 May '19. Officer, British Empire Order, 1 Jan. '19.
- VERY, S. R. T. (IV) 1st Lt., A. S. A. E. F., 78th Aero Cons. Sq.; Post Hq., A. P. O. 725, June '18; A. S. Personnel Sect., Tours, July; Hq., 1st Air Depot, July '19.
- WALKER, L. T. (VII) Maj. (T.), C. A. C., 2d Lt., C. A. C., '09; Capt., July '16; Maj. (T.), 3 May '18. A. E. F., France, 26 Feb. '18—22 June '19. Administrative work at different hqs.; Observer, Argonne Forest, 21-23 Oct. '18. Meuse-Argonne Offensive.
- WALSH, J. H. (XII) Comdr., C. C., U. S. N. Entered Service, '97; Comdr., U. S. N., '16. Constructor for Navy, Bath Iron Works, Bath, Me., Apr. '17; Fleet Naval Constructor and Material Officer, U.S.S. Pennsylvania, and on Staff of Commander-in-Chief, Nov. '17; Industrial Mgr., Navy Yard, New Orleans, La., Nov. '18.
- WALSH, J. L. (I) Col., Ord. Corps. Cadet, U. S. Military Academy, '05; Capt., Ord. Dept., '12; Maj., 23 June '17; Lt.-Col., 20 Jan. '18; Col., 21 Oct. Personnel Div., Ord. Dept., Washington, D. C. A. E. F., 20 Jan.—30 May '18; Military Observer with Allied Armies in France, England and Italy; Confidential Asst. to Chief of Ord. in charge of Military Intelligence for Ord. Dept., Washington, D. C. (Page 260.)
- WHITNEY, E. F. (VI) Capt., Engrs. Co. C., 29th Engrs., Camp Devens, Mass., 7 Sept. '17 (part of the Flash and Sound Ranging Bn.). A. E. F., France and Belgium, June '18—Feb. '19; Liaison Officer at G. H. Q., B. E. F., for confidential report on flash ranging methods; with 2d Field Sig. Bn., 5th Army, B. E. F., Advanced Sector Merville-Bethune-Loos; with Arty. Sect., 3d Field Sig. Bn., 3d Army, B. E. F.; Arty. Sect., 4th Field Sig. Bn., 2d Army, B. E. F. (southern Sect.); unit changed to 1st Bn. 74th Engrs.; after the armistice, transferred to American Comm. to Negotiate Peace, Dec. '18. Ypres-Lys Offensive. Gassed, Sept. '18.
- WILKINS, H. S. (II) Capt., Ord. Corps. 1st Lt., Ord. Corps, 25 July '17; Capt., 28 June '18. Frankford Arsenal, Pa., 25 July '17; Ord. Officer, Winchester Repeating Arms Co., and Peters Cartridge Co.; in charge of Small Arms Ammunition Shops, Frankford Arsenal, Philadelphia, Pa.
- *WILLIAMS, C. W. (X). See Roll of Honor (page 113).
- WILSON, E. C. (I) Capt., Engrs. Engr. Off. Tr. Camp, Camp Lee, Va., 12 June '18; 2d Engr. Tr. Regt., Camp Humphreys, Va., 27 July; 211th Engrs., Camp Forrest, Ga., 20 Aug. A. E. F., Sept. '18—May '19; Angers, 20 Oct.; Asst. Corps Engr., 2d Corps, 20 Oct.; Aide to Water Supply Officer, 9th Corps, B. E. F., 1 Nov.; 104th Engrs., 1st Corps, A. E. F., 19 Dec. Somme Offensive. (Page 218.)
- WONSON, H. S. (XIII) Lt.-Col., Q. M. C. Capt., Inf., 2 May '17; Maj., Q. M. C., 9 July; Lt.-Col., 7 Sept. '18. Office of Q. M. Gen., Washington, D. C., organizing purchasing and production system for Comm. on Supplies, Council of National Defense co-operating with Q. M. C. in equipping new army, 2 May '17; Division Q. M., 19th Div., Camp Dodge, Iowa, 28 Aug. '18; Staff Course, Army War College, Washington, D. C., 1 Oct.
- WOODRUFF, J. W. (XIII) Comdr., C. C., U. S. N. Naval Constructor, Navy Yard, Charleston, S. C., Nov. '17.
- YATES, I. I. (XIII) Comdr. (T.), C. C., U. S. N. Entered Navy, '97. Cons. Officer, U. S. Navy Yard, Norfolk, Va., repairing and altering vessels of the fleet, installing guns on merchant vessels, camouflaging vessels, fitting paravanes, repairing transports, building destroyers, and submarine chasers.

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- ARNOLD, R. B. (V) 1st Lt., Ord. Corps. Procurement Div., Washington, D. C., 7 Nov. '18—3 Jan. '19.
- BARCUS, W. J. E. (III) Capt., Ord. Corps, Gun Div., Dec. '17.
- BATCHELDER, R. J. (IV) 1st Lt., Amer. Red Cross. In Italy, 1 Feb. '18—1 Apr. '19; Dept. of Civil Affairs at Rome; organized and directed relief stations in the provinces near Rome.
- BOND, F. M. (II) Maj., Ord. Corps, N. A. Capt., O. R. C., 5 July '17; Maj., Ord. Corps, 25 July '18. Frankford Arsenal, Philadelphia, Pa., training for inspection of small arms ammunition, 5 July '17; Rock Island Arsenal, Rock Island, Ill., training for inspection of gun carriages and gun carriage parts, 10 Aug. '17; Army Inspector of Ord., St. Louis, Mo., 12 Sept. '17; Army Inspector of Ord., Pullman, Ill., 10 June '18; Chicago Dist. Ord. Claims Bd., assisting in settlement of suspended ordnance contracts, 1 July '19.
- BROWN, E. L., JR. (II) Capt., Engr. R. C. 1st Lt., Engr. R. C., 29 Sept. '17; called to active duty, 28 Dec. '17; Capt., after discharge. Engr. Off. Tr. Camp, Camp Lee, Va., 28 Dec. '17; General Engr. Depot, Washington, D. C., 19 Feb.—8 Oct. '18; Purchase, Storage and Traffic Div., General Staff, Chicago, Ill., 8 Oct. '18—15 Jan. '19. Gen. Supply Depot, Zone 7, Chicago, 15 Jan.—16 June '19.
- CALLAWAY, H. R. (II) 1st Lt., F. A. Repl. Troops, Camp Taylor, Ky., '18—12 Dec. '18. See Civilian Record.
- CATON, J. H., 3d (I) Maj., Engrs. Capt., Engrs., 10 July '17; active duty, 25 Sept. '17; Maj., 8 Apr. '19. Engr. Off. Tr. Camp, Sept. '17; 111th Engrs., Camp Bowie, Texas, Dec. '17; organized and trained Co. F.

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- 33d Engrs. at Camp Devens, Jan.—June '18. A. E. F., June '18—5 July '19; Co. and Bn. Comdr., 33d Engrs., and Highway and Street Engr. for Base Sect. No. 5. (Page 222.)
- CHANDLER, H. D. (IV) Capt., C. A. C. C. O., 2d Provisional Co., East Boston, 28 Aug. '17, on guard duty at the docks in establishment and control of barred waterfront zones of Boston Harbor; Aide-de-Camp to Maj. Gen. Crozier, Commanding Northeastern Dept., 5 Aug. '18; Aide-de-Camp to Maj. Gen. C. R. Edwards, Commanding Northeastern Dept., 1 Dec. '18.
- CHAPMAN, G. H. (VI) 1st Lt., A. S. A. 15th Aero Cons. Co. Disch., 31 Dec. '18.
- CHILD, HUNTLEY (III) Capt., M. T. C. Atlanta and New York, Sept. '18—May '19. See Civilian Record.
- CHURCH, E. S. (II) Capt., A. S. P. 1st Lt., Aviation Sect., Sig. C., 22 Jan. '18; Capt., 16 Aug. '18. Designed trailers and equipment for Air Service for three months; Aide to Bd. to Standardize Rolling Kitchens, designing and building rolling kitchen now accepted as the Army standard; assigned to Production Div., A. S.; Asst. Chief of Trailer Sect. Purchase and Storage Div. Motor Branch, Sept. '18; Acting Chief, 1 Oct. '18—1 Mch. '19. See Civilian Record.
- CLARK, W. D. (VI) Capt., A. S. P. 2d Lt., Aviation Sect., Sig. R. C., Feb. '18; Capt., A. S. P. Spruce Prod. Div. Disch., 27 Jan. '19.
- COBURN, F. G. (XIII) Comdr., C. C., U. S. N. Naval Constructor, Mgr., Naval Aircraft Factory, Navy Yard, Philadelphia, Pa. (Page 250.)
- COHEN, A. S. (II) Capt. Ord. Corps. Entered Service 29 Sept. '17. Stationed at Watertown Arsenal, Watertown, Mass.
- COLEMAN, G. S. (I) 1st Lt., Engrs. Commissioned 19 July '18; active duty, 27 July '18. Camp Lee and Camp Humphreys 27 July—2 Oct. '18; Camp Forrest, Engrs. 25 Oct.—6 Jan. '19. 2d in Command, Co. C, Camp Humphreys, 2 Oct.—25 Oct. '18; Camp Forrest, Ga., 25 Oct.—6 Jan. '19.
- COTTER, C. S. (XIII) Pvt., Canadian Inf. 58th Canadian Inf. Bn., 1 Feb. '16. C. E. F., France and Belgium, Nov. '16—Feb. '19; in all the engagements taken part in by the Canadian Corps during that period; Infantry Scout, nine months in trenches; Brigade Draftsman, fifteen months in the trenches; never missed a trip in the line with 9th Canadian Inf. Brig. while in France. Belgian and French Croix de Guerres.
- DADDOW, S. H. (II) 2d Lt., A. S. Pvt., Sig. C., 29 Jan. '18; 2d Lt., A. S. 28 June '18. School of Military Aeronautics M. I. T. 29 Jan. '18; Union Switch and Signal Co., Swissvale, Pa., 1 July; Rockwell Field, San Diego, Calif., 19 Aug. '18.
- DAVIDSON, J. H. (VI) Maj., Inf. 9th Bn., 166th Depot Brig., Camp Lewis, Washington, Feb. '18; in charge of inspection of accumulated storage, and disposition of all records of all organizations demobilized at Camp Lewis; Member of special board to determine value of stock and fixtures left in exchanges by outgoing troops, Dec. '18.
- DE LOACH, J. K. (XIII) Capt., Engrs. 20th Engrs., 3 Dec. '17. A. E. F., 10 May '18—29 July '19.
- DENNEY, M. E. (XIII) Maj., British Inf. Lt., Inf., Oct. '14; later M. G. Corps, 11th Argyll and Sutherland Highlanders; Capt., June '15; Maj., Oct. '16. B. E. F., Oct. '14—June '17; at the Admiralty, June '17—July '18. Loos, Sept. '15. Mentioned in Despatches Commander-in-Chief, B. E. F., July '18.
- DE VEYRA, M. P. (I) 1st Lt., Inf. Philippine Div., 5 July '18. See Civilian Record.
- DICKINSON, DWIGHT, JR. (I) Lt., M. C., U. S. N., attached 5th Regt. Marines, 2d Div. Entered Service, 28 Apr. '11; Lt., 18 May '18. U. S. Marine Recruiting Office, Cincinnati, Ohio, 6 Apr. '17—6 Jan. '18; Marine Barracks, Quantico, Va., 8 Jan.—17 May '18. A. E. F., 8 June '18—26 July '19; Marine Training Bn., Châtillon-sur-Cher, 14 June—24 Aug. '18; Bn. Surgeon, 2d Bn., 5th Regt. Marines, 2d Div., 27 Aug. '18. St. Mihiel Offensive; Champagne Offensive (Blanc Mont); Meuse-Argonne Offensive (Landres-et-St. Georges to Mouzon); Army of Occupation. Distinguished Service Cross; Croix de Guerre with Gold Star; Divisional Citation. (Pages 132 and 195.)
- DOUGLASS, A. S. (I) Lt.-Col., Ord. Corps. Capt., 14 Sept. '17; Maj., 15 Jan. '18; Lt.-Col., 25 Mch. '19. General Supervising Inspector of Ordnance Material, Sept. '17—Mch. '18; Inspection Mgr., Boston Ord. Dist., spring '18; Ord. Dist. Chief and Chairman, Dist. Claims Bd., 20 Feb. '19. See Civilian Record.
- DRULEY, W. P. (XIII) Lt. Comdr., C. C., U. S. N.
- DUN, H. W., JR. (I) 1st Lt., Engrs. 2d Lt., 15 May '17; 1st Lt., 12 Oct. '18. A. E. F., 10 Jan. '18—28 May '19; 21st Engrs. (Ry.), serving 1st Army. St. Mihiel and Meuse-Argonne Offensives.
- ELLIS, ALEXANDER (III) 1st Lt., Q. M. C. 101st Engrs., June '17. A. E. F., Oct. '17—Jan. '19; transferred from 101st Engrs. to Chief, Bu. of Fire Prevention, Q. M. C., 9 May '18; Deputy Chief of Bu., 17 June—7 Dec. '18. (Page 222.)
- ELLIS, H. A., Lt. Comdr., U. S. N. Lt. (j. g.), 1 July '17; Lt. Comdr., 1 July '18. 1st Asst. Engr., U.S.S. Kentucky; Asst. Gunnery Officer, U.S.S. Kansas, Feb. '18; Executive U.S.S. Tacoma, on convoy duty; Navigator, U.S.S. Huntington, carrying returning troops.
- ELTON, H. C. (I) 1st Lt., Engr. O. R. C. Commissioned, 4 June '17. American University, 5-21 Sept. '17. See Civilian Record.
- ESTEN, P. A. (V) Cadet, F. A. Cent. Off. Tr. Sch., 12th Obsn. Btry., 26 Training Btry., F. A. Cent. Off. Tr. Sch., 16 Oct.—29 Nov. '18. See Civilian Record.
- EWING, C. G. (III) Pvt. 1 cl., Q. M. C. Remount Div.; Off. Tr. Sch., 2 Sept.—30 Nov. '19.
- FERNALD, P. E. (II) 1st Lt., 147th Engrs., Ft. Harrison, Md., Oct. '18.

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- *FORD, C. C. (IV). See Roll of Honor (page 127).
- FORD, W. D. (II) Ensign (T.), U. S. N., 18 Sept. '18. U. S. N. R. F., 6 June '18; Naval Academy, Annapolis, until 18 Sept. '18; U. S. N. Transport Harrisburg, Sept. '18—3 July '19.
- FRENCH, H. W. (VI) 1st Lt., Engrs. Commissioned, 15 Aug. '17. A. E. F., Gas Service, Lines of Communication, Dec. '17; Hq., S. O. S., General Staff, Tours, Sept. '18.
- FRETZ, P. H. (XIII) Comdr., C. C., U. S. N., Mare Island, Calif. (Page 249.)
- FRIEDMAN, F. J. (II) Capt., Ord. Corps. 1st Lt., Dec. '17; Capt., 27 Sept. '18. 126th Ord. Depot, Watervliet Arsenal, 28 Aug. '17; Camp Sevier, S. C., Jan.—Sept. '18; Camp Jackson, S. C., Sept.—Nov. '18; Ft. Still, Okla., Nov. '18—Aug. '19.
- GERRISH, H. T. (I) Capt., Engrs. 1st Lt., 2 Sept. '17; Capt., Aug. '18; Inst., Engr. Off. Tr. Camp, 2 Jan.—2 Sept. '18; Capt., C. O., Co. F, 218th Engrs., Camp Travis, Texas, 5 Feb. '19.
- GIMSON, B. L. (II) 2d Lt., British Army Service Corps. Pvt., Army Service Corps, Mechanical Transport, May '16; Sgt., 26 July '16; 2d Lt., 21 Jan. '18. B. E. F., July '16—June '19; commanded section of fifty men and sixty lorries; supplied ammunition throughout the German Offensive on Ypres Sector, Apr. '18; carried supplies and ammunition to New Zealand Div., autumn '18; crossed the Rhine at Cologne, 21 Dec. '18. Ypres Defensive, Apr. '18, Lys Offensive, Aug.—Nov. '18; Army of Occupation.
- GIVEN, W. B., JR. (VI) Capt., Inf. 2d Lt., 12 May '17; 1st Lt., 15 Aug. '17; Capt., 18 Sept. '18. A. E. F., 4 Nov. '17—18 Mch. '19. Luneville Sector; Baccarat Sector; Belfort Sector; St. Mihiel Offensive; Meuse-Argonne Offensive (Sedan).
- GURNEY, H. P. (X) 1st Lt., C. W. S. Gas Defense Div., 24 Feb. '18. At Philadelphia (Pa.), and Long Island Laboratories; after armistice, Material Disposition Sect., until disch., 12 Apr. '19.
- HAGOOD, LEE (VI) 1st Lt., U. S. A., retired. Entered Service, Aug. '99; retire 1 Oct. '06. Appointed Asst. Military Attaché, American Military Mission, Petrograd, Russia, from beginning of war until Mch. '18. (Page 350.)
- HANLEY, G. T. (VII) Maj., F. A. A. E. F., Btry. B, 103d F. A., Nov. '18; 54th F. A.; returned to U. S. as inst. at camp in Texas.
- HEIMER, P. H. (III) Capt., Engrs. 1st Lt., 1st Repl. Regt. Engrs., 2 Sept. '17; Capt., 15 Sept. '18. Washington Barracks, Washington, D. C., training engr. troops and instructing in lithographic methods of map reproduction in the field; Camp Forrest, Ga., in command of three hundred recruits.
- HENNAN, R. D. (I) 1st Lt., Engrs. Co. E, 2d Regt., 12 Sept. '18.
- HOLMES, B. B. (III) Maj., C. A. C. Capt., 63d C. A. C. 15 July '17; Maj., 11 Nov. '18. A. E. F., 13 July '18—26 Feb. '19. Washington, D. C., Feb.—Nov. '19.
- HYDE, R. T. (IV) 2d Lt., 40th Engrs. (Camouflage Sect.). Pvt., Engrs., 20 Feb. '18; Mr. Engr. (j. g.), 2 May '18; 2d Lt., 19 Sept. '18. In charge largest piece of camouflage done at Sandy Hook Proving Grounds for which special paints were prepared; in charge of Experimental Detachment; investigated scientific means of camouflage protection and detection.
- IASIGI, O. A. (VI) Sous-Chef, American Ambulance Field Service. Sect. 1, '15; Sect. 8, '16. In France, 30 Jan. '15—4 July '15; 25 Apr. '16—2 Jan. '17. Second Battle of Ypres, '15; Verdun, '16.
- KERR, W. C. (X) 1st Lt., A. S. Pvt., 23d Engrs., 11 Oct. '17; transferred to Aviation Sect., Sig. C., 22 Oct. '17; 1st Lt., A. S., Nov. '18. A. E. F., 29 Oct. '17—Dec. '18.
- KIBBEY, J. R. (IV) Capt., C. A. C. Off. Tr. Camp, Ft. Winfield Scott, Calif., 12 May—15 Aug. '17; 1st Lt., C. A. C., 15 Aug. '17; Capt., 23 Nov. '17. Ft. MacArthur, Calif., 15 Aug. '17—30 May '18. A. E. F., 19 June—19 Dec. '18; two weeks with French Army, Anti-Aircraft Arty., at Cel-de-la-Schlucht, Alsace, 8-23 Aug. '18; Inst., Anti-Aircraft Arty., Arnouville, France, 1 Sept.—5 Dec. '18.
- KINTNER, E. G. (XIII) Comdr., C. C., U. S. N. Entered Service, 12 Sept. '98. Engaged in repairing German interned ships, Balboa, Canal Zone.
- LOCKE, J. H. (VIII) Capt., Ord. Sect., O. R. C. Not assigned active duty and resigned to remain with Commonwealth Steel Co. See Civilian Record.
- LOOMIS, L. A. (III) Maj., C. W. S. 1st Lt., Gas Defense Service, 15 Aug. '17; Capt., C. W. S., 9 Oct. '18; Maj., 29 Oct. Organized 1st Unit of Gas Defense Service to go to France. A. E. F., 14 Nov. '17—15 Jan. '19; Gas Officer, St. Nazaire, Nov. '17; in charge, Depot Sect. of Gas Service, Tours, handling all Gas Service supplies in France, 13 Mch. '18.
- LUTHER, H. B. (I) Lt., U. S. N. Lt. (j. g.), U. S. N. R. F., 27 Nov. '17; transferred to C. C., June '18; Lt., 27 July '18. Engr. Sect., Bu. Cons. and Repair, Navy Dept., Washington, D. C., July '17—Mch. '19.
- LYON, O. S. (II) Corp., Inf. Co. F, 107th Inf., 27th Div., 4 May '17. A. E. F., East Poperinghe Line, 9-20 July '18; Diekebusch, 21-30 Aug. '18; Somme Offensive; Hindenburg Line, 29-30 Sept., La Selle River, 17 Oct., Jonctmer Ridge, 18 Oct., St. Maurice River, 20 Oct. '18.
- MacNUTT, J. S. (VII) 1st Lt., Sn. C. Commissioned, 5 Aug. '18. Sanitary Supervision of Camp Water Supply, Camp Lee, Va.; commanded Camp Sn. Detachment; Camp Sn. Engr., Camp Sherman, Ohio; Camp Surgeon's Office, Camp Knox, Stithton, Ky.
- MANNING, R. E. (VI) 1st Lt., Q. M. C. Pvt., Inf., 5 Jan. '18; Corp., 20 Apr.; 1st Lt., Q. M. C., 7 May. A. E. F., 20 May—16 Dec. '18; Bu. of Fire Prevention, on inspection and engr. work covering all American property in France.

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- MERRITT, A. R. (IV) reported to be in France in service, Apr. '19.
- MORRISON, C. W. (I) Pvt., Inf., Oct. '18. See Civilian Record.
- MYERS, D. B. (III) Maj., Engrs. Capt., E. R. C., 30 June '17; on active duty, 2 Sept. '17; Maj., Engrs., 4 Oct. '18. 2d Off. Tr. Camp, Ft. Leavenworth, Kan., 2 Sept. '17; 304th Engrs., Camp Meade, Md., 10 Dec. '17. A. E. F., 18 July '18—Apr. '19; in command, 1st Bn., 304th Engrs., 79th Div. St. Mihiel Offensive (in reserve); Meuse-Argonne Offensive (Montfaucon and Grande Montaigne).
- PATTEN, H. C. (VI) 1st Lt., A. S. 2d Lt., Sig. C., 3 Dec. '17; 1st Lt., Finance Dept., A. S., 13 Aug. '18. Detached service, as Ex. Asst. to the Officer in Charge, Finance Dept., Detroit, Mich., until 9 July '19.
- PHILLIPS, G. W., with American Field Service, attached French Army '15—'16.
- POWELL, P. R., (II) 2d Lt., A. S. A. Enlisted in Maryland National Guard F. A., July '16; 2d Lt., Engrs., 13 June '17; transferred to A. S. A., 23 Jan. '18. Disch., fall '19.
- PRESTON, C. H. (IV) C. Q. M., U. S. N. R. F. (A.) 29th Co., Div. C., Naval Aviation Detachment, M. I. T., summer '18.
- QUINLAN, G. A. (I) Maj., Engrs. 2d Bn., 113th Engrs., A. E. F.
- RAPELYE, H. A. (II) Maj., Inf. Capt., Inf., 7 May '17; Maj., 26 Feb. '19 and Adj., 158th Inf. Brig. 4th Prov. Tr. Regt.; Hq., 70th Div., Camp Meade, Md., 29 Aug. '17. A. E. F., Nov. '17—Feb. '18 and 1 July '18—18 May '19. Meuse-Argonne Offensive; Troyon Sector. Divisional Citation. (Page 4.)
- REED, W. D. (IV) Capt., Engrs. Adj., Hq. Co., 115th Engrs., Camp Kearney, Calif. A. E. F., Army Staff College, Mch. '18.
- RYDEN, R. W. (XIII) Comdr., C. C., U. S. N. Entered Service, 11 Sept. '09; Lt. Comdr., Apr. '17; Comdr., 1 July '18. In Philippines, Sept. '15—Mch. '18; inspected ex-German merchant vessels interned in Manila; supervised hull work when a number of them were taken over, overhauled and repaired at Olangapo. Bu. Cons. and Repair, Navy Dept., Washington, D. C., May—Sept. '18; U. S. Navy Yard, Portsmouth, N. H., Sept. '18—end of war.
- SCHRIEFER, H. C. (III) 2d Lt., Engrs. Pvt., Engrs., 27 Nov. '17; 2d Lt., Sept. '18. A. E. F., Mch. '18—Jan. '19; 23d Engrs., building roads; Bu. of Fire Prevention, Hq., S. O. S., June '18.
- SPURR, H. V. (I) Capt., Engrs. Candidate, 2d Off. Tr. Camp, Plattsburg, N. Y., 25 Aug.—26 Nov. '17; 2d Lt., Inf., 26 Nov. '17; resigned commission same day. Capt., Engr. R. C., 15 July '18; discharged, 7 Jan. '19; recommissioned Capt., Engr. R. C., 10 Mch. '19. Engr. Off. Tr. Sch., Camp Humphreys, Va., 10 Aug.—28 Oct. '18; 9th Engr. Tr. Regt., Camp Fremont, Calif., 4 Nov.—13 Dec. '18.
- STEELE, C. D. (XIII) Corp., Engrs. Corp., 604th Engrs., 8 Apr. '18. A. E. F., 1 Sept. '18—25 June '19. Meuse-Argonne Offensive.
- STEESE, C. M. (II) Col., Ord. Corps. At Washington, D. C., and Tours, France, sometime before Sept. '18. Returned to U. S., July '19. (Page 252.)
- TOPPAN, W. H. (X) Capt., C. A. C. Res. Off. Tr. Camp, Plattsburg, N. Y., 14 May '17; Ft. Monroe, June '17; Capt., C. A. C., 15 Aug. '17. 73d Regt., Railway Arty. C. A. C., Coast Defense of Boston until Sept. '18. A. E. F., Sept.—Dec. '18.
- WADE, C. L. (II) 1st Lt., Engr. R. C. Entered Service, 4 Sept. '17. At Charleston, S. C., working on military maps with U. S. Geological Survey, 28 Sept. '17; Camp Humphreys, Va., on Staff in Personnel work, 1 Apr. '18; Camp Forrest, Ga., with 212th Engrs., 1 Aug.; with 212th Engrs., Camp Devens, Mass., Sept., '18. Disch., Feb. '19, to go with Federal Bd. for Vocational Education, Rehabilitation Div., Boston, Mass.
- WEEKS, A. T. (II) Pvt., American Field Service, France, Sept.—25 Oct. '17. See Civilian Record.
- WEEKS, H. E. (VI) 2d Lt., A. S. A. Pvt. 1 cl., Sig. R. C., Dec. '16; Flying Cadet, 1st Flying Cadet Co., Balloon Div., Aviation Sect., Sig. R. C., Ft. Omaha, Neb.; graduated as 2d Lt. from Balloon School, Omaha, 19 Apr. '18; graduated School of Military Aeronautics, Ohio State University, Columbus, 15 June '18. Flight Inst. and Inst. in Aerial Photography, Arcadia, Calif.
- WELLINGTON, H. W. (III) Asst. Surg., U. S. N. U. S. S. New Jersey.
- WESTERVELT, G. C. (XIII) Comdr., C. C., U. S. N. Entered Service, '07; Lt. Comdr., Apr. '17; Comdr. 1 Aug. '17. Supt. Constructor, Jan. '17 and General Inspector of Aircraft, 1 July '18; on Special Aviation Mission with joint Army and Navy Bd., 1 July—1 Sept. '17, in Europe; on special aviation duty, 1 Aug.—16 Dec. '18; had general charge, outside of Washington and the Naval Aircraft Factory in Philadelphia, of the building of aircraft for the Navy Dept., under the Bu. of Cons. and Repair, including the design and building of the NC Flying Boats used in the transatlantic flight. (Page 244.)
- WHITING, M. T. (I) Capt., Cons. Div., Q. M. C. Capt., Cons. Div., Q. M. C., Washington, D. C., 10 Aug. '18; Asst. to Cons. Q. M., Camp Mills, N. Y., 20 Sept., at Camp Mills, N. Y., and U. S. Base Hospital, Mineola, L. I.
- WHITTEN, ERNEST (II) Capt., Ord. Corps. Ord. Motor Instruction Sch., Raritan Arsenal, Metuchen, N. J.; 17 Aug. '18; Ord. Officer, 27th F. A., 9th Div., Camp McClellan, Ala., 1 Oct. '18—1 Feb. '19.
- WHITTLE, G. D. (I) 1st Lt., Engrs. Engr. Off. Tr. Sch., 7 Nov.—10 Dec. '18.
- WILLIAMS, E. I. (IV) Capt., Amer. Red Cross. Italian Comm., Rome, 20 Nov. '17; organized and directed Genoa Office for Dist. of Liguria, 27 Dec. '17, until closing down of Amer. Red Cross activities in Italy, 21 Jan. '19.
- WILLSON, E. R. (VI) Sec., Y. M. C. A., with "Foyer du Soldat" Branch.

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- ALMY, E. T., JR. (III) Pvt., Engrs., 23 July '18. Co. D, 210th Engrs., 10th Div.; 20th Co., 164th Depot Brig. awaiting call to Engr. Off. Tr. Camp, 1 Nov. See Civilian Record.
- ATHERTON, T. H., JR. (IV) Capt., F. A. 1st Lt., 3d Pa., F. A., 8 Aug. '16; Capt., F. A., 30 June '17. Federal Service on Mexican Border; 109th F. A., 53d Brig., 30 June '17; C. O., Btry. F, 26 Nov. A. E. F., 18 May '18—30 May '19. Fismes-Vesle Sector, 11-18 Aug.; Oise-Aisne Offensive, 18 Aug.—9 Sept.; Meuse-Argonne Sector, 22-26 Sept.; Meuse-Argonne Offensive, 26 Sept.—8 Oct.; Ypres-Lys Offensive, 29 Oct.—11 Nov. Divisional Citation; Belgian Croix de Guerre; French Croix de Guerre with Palm. (Pages 147, 152, 187 and 190.)
- BELKNAP, H. P. (II) Corp., Inf., '17. 13th Co., 4th Bn., 151st Dep. Brig., Camp Devens, May '18; 3d Co., Off. Tr. Camp, Camp Devens, Mass., June. A. E. F., '18; 151st Dep. Brig., 76th Div.
- BETTINGTON, E. M. (VI) Maj., Royal Air Force, B. E. F.
- BISHOP, F. H., Corp., Engrs. A. E. F., with 40th Engrs. (Camouflage).
- BLACK, T. B. (III) 1st Lt., F. A. Off. Tr. Camp, Ft. Snelling, Minn., 27 Aug. '17; 338th F. A., Camp Dodge, Iowa, Dec.; Dunwoody Institute Training Detachment, Minneapolis, Minn., 15 May '18; C. O., S. A. T. C. Lawrence College, Appleton, Wis., 11 Sept. '18.
- BLANKENBUEHLER, R. E. (X) 1st Lt., Ord. Corps. Explosives, Chemicals and Loading Div., Office of Chief of Ord., War Dept., Washington, D. C.
- BLODGET, W. P. (IV) Capt., C. A. C. Entered Service, 23 Aug. '17; Capt., C. A. C., 27 Nov. 17th Co., C. A. C., Boston, Mass., 27 Nov.; 16th Co., 4 May '18; C. O., Hq. Co., 71st Regt. Arty., 18 May. A. E. F., 31 July '18—11 Feb. '19; with French 65th Div., near Nancy (Moselle) to study Arty. Information Service, Oct. '18; Rejoined 71st Regt., 1 Nov. '18.
- BLOOD, K. T. (XIII) Maj., C. A. C. Entered Service, '11; 1st Lt., C. A. C., 1 July '16; Capt., 15 May '17; Maj., 30 July '18. Ft. Totten, N. Y. A. E. F., 20 June—9 Nov. '19.
- BOLLENBACHER, J. C. (IV) 1st Lt., A. S. P. 45th Aero Sq., 26 Oct. '17. A. E. F., 3 Dec. '17—5 May '19; at Romorantin building Air Service Production Center No. 2; later in charge of Hospital Cons., Dist. of Paris; 485th Aero Sq., 5 May '18. (Page 221.)
- BORDER, L. S. (XIII) Comdr., C. C., U. S. N. Asst. to Outside Supt., Norfolk Navy Yard, Apr. '17; in charge of Sect. of Auxiliaries, Design Div., Bu. of Cons. and Repair, Navy Dept., in charge of fitting out and altering merchant vessels used as troop transports.
- BOUNETHEAU, H. D. (IV) C. C. M., U. S. N. R. F. Dept. of Public Works, Charlestown Navy Yard, '18.
- BURGHER, B. Y. (I) 2d Lt., A. S. A. A. S. Mechanics Sch., Kelly Field, Texas, 21 Jan. '18; Adj., Training Dept., Mechanics Sch., Kelly Field.
- CABOT, SAMUEL (V) Maj., Inf. 1st Lt., 12 May '17; Capt., 15 Aug.; Maj., 30 Dec. Plattsburg Tr. Camp, May '17; 151st Depot Brig., Camp Devens, Mass., Sept. '17; 303d Inf., May '18; 106th Inf., Dec. A. E. F., July '18—Mch. '19.
- CAMPBELL, ALFRED (VI) Ensign, U. S. N. R. F. C. M. M., U. S. N. R. F., 2 Aug. '18; Warrant Machinist, 15 Nov.; Ensign, Feb. '19. U. S. N. Transport Service, U.S.S. Julia Luckenbach, and U.S.S. Santa Rosa.
- CARPENTER, K. E. (IV) Engr., Clerk, Transportation Corps. Entered Service, 18 Oct. '17. A. E. F., 23 Nov. '17—fall '19. Paris, Nov. '17; Tours, Mch., '18; Paris, Sept. '19; on drafting bd. in connection with storage yards, engine terminals, regulating stations, and station and dock facilities for American railroads in France.
- CARTER, C. C. (VI) Lt.-Col., U. S. A. Entered Service, 15 June '05; Lt.-Col., 15 Aug. '17. Prof., U. S. Military Academy, '17. A. E. F., July—Aug. '18; Special Observer, Aisne-Marne Offensive, 27-28 July '18; Somme Offensive, 8 Aug. '18.
- CHAPMAN, L. D. (VI) 2d Lt., C. A. C. Pvt., C. A. C., 5 Dec. '17; 2d Lt., 26 June '18. 6th Co., Boston, C. A. C., 5 Dec. '17. A. E. F., 18 July '18—10 Feb. '19.
- CLARK, M. S. (III) 2d Lt., Inf. Pvt., Inf., 5 Jan. '18; Sgt., May; 2d Lt., July. 3d Off. Tr. Sch., 5 Jan. '18; 308th Inf., Apr. A. E. F., Apr. '18—Apr. '19; 23d Inf., July '18; 147th Inf., Feb. '19. Baccarat Sector; St. Mihiel Offensive; Champagne Offensive. Prisoner of War in Germany, 4 Oct.—30 Nov. '18. Wounded by shell.
- CRAWFORD, C. H. (I) Lt.-Col., General Staff. Maj., Engrs., later General Staff, 15 Mch. '18; Lt.-Col., 20 July. General Engr. Depot, Washington, D. C., Mch. '18. See Civilian Record.
- CROWLEY, F. C. V. (I) Capt., Cav. C. O., M. G. Troop, 5th Cav., Ft. Bliss, Texas.
- DEWEY, BRADLEY (X) Col., C. W. S. Capt., O. R. C., July '17; Maj., Sn. C., 31 July; Lt.-Col., 13 Feb. '18; Col., C. W. S., 13 July. A. E. F., 24 Mch.—31 May '18; educational and investigation work in France. Distinguished Service Medal. See Civilian Record and pages 139 and 254.
- DICKERMAN, A. L., JR. (III) Maj., Q. M. C. Capt., Ord. Corps, Nov. '17; Maj., Q. M. C., Aug. '18. Fuel Branch, Ord. Dept., Washington, D. C., Nov. '17. A. E. F., Sept. '18—Mch. '19.
- DOLE, H. H. (I) Ensign, U. S. N. R. F. Entered Service, 2 Apr. '17. Public Works Dept. and Enrollment Dept., Charlestown Navy Yard, Mass.; construction and maintenance work, Portsmouth Navy Yard, N. H.; Special Prison Reform Work, Naval Prison, Portsmouth, N. H.
- DROWN, H. C. (II) 1st Lt., Engrs. Pvt., Engrs., 10 May '17; 2d Lt., 27 June; 1st Lt., 23 Feb. '18. 101st Engrs., 26th Div., Camp Devens, Mass. A. E. F., 26 Sept. '17—4 Apr. '19. Nivray-Marvoisin, 16 June '18;

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- Champagne-Marne Defensive; Aisne-Marne Offensive; St. Mihiel Offensive; Meuse-Argonne Offensive. Wounded near town of Belleau, 19 July '18.
- EDDY, L. C. (VI) Lt. (j. g.), (T.), U. S. N. R. F. 2d Lt., U. S. R., 1 Aug. '17 (inactive and honorably discharged); Ensign (T.), 18 Sept. '18; Lt. (j. g.), (T.), 1 July '19. In transport service, U.S.S. Missouri, U.S.S. Aeolus. See Civilian Record.
- ELLIS, RIDSDALE (XIV) Pvt., Inf., 26 May '18. Assigned to International Filter Co., Chicago, Ill., on chemical research work for Govt., 26 May '18—20 Jan. '19.
- *FELLOWS, R. H. (I, IV). See Roll of Honor (page 93).
- FENGER, F. A. (XIII) Lt. (j. g.), U. S. N. R. F. Ensign, U. S. N. R. F., 27 Mch. '17; Lt. (j. g.), 21 Sept. '18. Survey of merchant vessels, 27 Mch. '17; Asst. Navigator and Jr. Div. Officer, U.S.S. Chester, 26 Apr. '17. A. E. F., Aug. '17—Dec. '18; convoy between Gibraltar and England; Cons. Officer, U.S.S. Prometheus, Brest, France, 23 Oct. Engagement with U-53, 5 Sept. '18.
- FERGUSON, W. C. (II) Capt., Ord. Corps. 1st Lt., Ord. Corps, 21 Aug. '17; Capt., 15 Aug. '19. Manila Ord. Depot, P. I., Oct. '17—Aug. '18. A. E. F., Siberia, Aug.—Nov. '18. Frankford Arsenal, Philadelphia, Pa., Dec. '18.
- FLAGG, MONTAGUE (IV) Lt. (j. g.), U. S. N. Convoy escort out of New York.
- GORDON, W. S., JR. (II) 1st Lt., A. S. A. Pvt., Off. Tr. Camp., 13 May '17; 1st Lt., Cav.; resigned commission to enter A. S., 10 Aug.; Cadet, A. S.; 1st Lt., 6 June '18. Off. Tr. Camp., Plattsburg, 13 May '17; M. I. T. Ground School for Aviation, 11 Aug. '17. A. E. F., 28 Oct. '17—'19; Cadet Flying School; Officer in Charge of Ground Training, 3d Aviation Instruction Center, Issoudon, 6 June '18; Commandant of School, No. 3, St. Maxient, 6 July—23 Dec.
- GREEN, F. M. (VI) Lt.-Col., C. A. C. 2d Lt., C. A. C., '10; 1st Lt., '16; Capt., 15 May '17; Maj. (T.), 24 June '18; Lt.-Col. (T.), 19 Oct. Ballistic Work, Ft. Monroe, Va.; Inst., 1st and 2d R. O. T. C., Ft. Monroe; in charge C. A. Sect., R. O. T. C., M. I. T.
- GREEN, W. D. (I) 2d Lt., Inf. Candidate, Off. Tr. Camp., 12 May '17; 2d Lt., Inf., 15 Aug. 104th Engrs., Camp McClellan, Ala., Sept. '17; 14th N. Y. Inf., later 2d Pioneer Inf., Camp Wadsworth, S. C., Oct. '17; Student, School of the Line, Camp Sherman, Ohio, attached to 322d M. G. Bn., Jan. '18; M. G. Tr. Center, Camp Hancock, Ga., May—Dec. '18.
- HARRUB, C. N. (XI) Sn. Engr., with rank of 1st Lt., later Capt., Public Health Service. Camp Johnston, Jacksonville, Fla., in charge of malaria control work in the extra-cantonment zone, around Jacksonville, South Jacksonville, and the near-by shipyards, Jan. '18—Jan. '19.
- HARTWELL, A. E. (II) 1st Lt., Engr. R. C. Candidate Officer, 11 May '17; 1st Lt., Engr. R. C., 28 June. Engr. Off. Tr. Sch., Leon Springs, Texas, 11 May '17; Ft. Leavenworth, Kan.; Officer in Charge, Engr. Sub-depot and C. O., 425th Engrs., Camp Wheeler, Ga., 9 Sept.—17 Jan. '19.
- HATTON, J. M. (IV) Capt., Sect. of Cons., Amer. Red Cross, 1 Sept. '18. France, 5 Oct., '18—28 June '19, at Le Mans (Sarthe).
- HAVENS, H. L. (XI) Capt., Engrs. Pvt., Engr. Off. Tr. Camp., 5 Jan. '18; 1st Lt., Engrs.; Capt., Sept. '18. Engr. Off. Tr. Camp., Camp Lee, Va.; Post Personnel Adj., Washington Barracks, D. C., 8 Feb. '18.
- HEIDELBERG, F. M. (II) 1st Lt., Ord. Corps. Entered Service, 6 Jan. '18. Inspector of Ord., Bethlehem Steel Works, 30 June '17; Asst. Inspection Mgr., Chicago Dist., 23 Aug. '18; Inspector of Ord., Dunbar Mfg. Co., Variety Mfg. Co., and Wilcor Mfg. Co., 4 Dec. '18; Asst. to Ord. Inspector, Stand Drop Forgings Co., Indiana Harbor, Ind.
- HEROLD, A. F. (II) 1st Lt., Inf., attached A. S. 1st Lt., Inf., 14 May '17; attached A. S., 22 Sept. '17. 91st Div. (unassigned), 14 Aug. '17; 137th Inf., 35th Div., 2 Sept.; A. S., (Casual), 22 Sept. '17. A. E. F., Dec. '17—Nov. '18; 12th Aero Sq., Apr. '18; served with French Escadrille 287 near Verdun, Mch. and Apr. '18. Wounded severely near Baccarat, 24 June '18. Croix de Guerre. Inst., Post Field Observers' School, Washington, D. C., Dec. '18. (Page 204.)
- HOWARD, H. S. (XIII) Comdr., C. C., U. S. N. Entered Service, '00; Comdr., '16. Navy Yard, Portsmouth, N. H., in charge of design and construction of submarines.
- HOYT, R. N. (VII) Capt., Sn. C. 1st Lt., Sn. C., 27 Aug. '17; Capt., 6 May '18. Organized Sn. Sqds. 119 and 120, Camp Crane, Oct. '18. A. E. F., 12 Nov. '18—'19; Sn. Sqd. 120, Bordeaux; Chief Sn. Inspector, Bordeaux Embarkation Camp, '19. See Civilian Record.
- IRWIN, R. E. (VII) Capt., Sn. C. Entered Service, 15 Dec. '17. Sn. Engr., Edgewood Arsenal, Md., Jan. '18; Camp Sn. Inspector, 9 June; Camp Sn. Engr., Camp Custer, Mich., 25 Oct. '18—14 Mch. '19.
- JACOBS, C. D. (II) Maj. Engrs. Capt., Engrs., 2 July '17; Maj., 10 Sept. '18. Officer in Charge, Military Mapping at Camp Devens, Mass., Northeastern Dept., 2 July '17; Topographical Officer, 101st Engrs., 1 Sept. A. E. F., 26 Sept. '17—1 Sept. '18. Pas Fini Sector, (Château-Thierry). Camp Humphreys, Va., 1 Sept. '18; later, Office of Chief of Engrs., Washington, D. C.
- JENNESS, H. L. (VI) 2d Lt., Inf. Pvt., Inf., 22 Sept. '17; Sgt., Oct.; 2d Lt., 1 June '18. 315th Inf., 79th Div., 22 Sept. '17; Off. Tr. Sch., Camp Lee, Va., 1 Jan. '18; Co. F, 63d Inf., 11th Div., Camp Meade, Md., 1 June '18—1 Feb. '19.
- JONES, R. L. (VI) Capt., Sig. R. C. Entered Service, 4 Apr. '17. Detached service in charge of a group of scientists and engineers employed by the Western Electric Co., developing communication and detection apparatus for use in airplanes, for detecting underground mining operations, and for locating submarines.

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- JUDD, A. C. (XIII) Maj., Inf. Capt., Inf., 14 May '17; Maj., 2 Sept. '18. 1st Off. Tr. Camp, 14 May '17; Regtl. Adj., 310th Inf., 28 Aug. '17—6 Sept. '18. A. E. F., 20 May '18—6 June '19; Army School of the Line, Langres, 7 Oct. '18. St. Mihiel Offensive; Limcy Sector.
- KING, W. W. (X) 1st Lt., Aviation Sect., Sig. C. C. O., 42d Aero Sq., Wright Field, Dayton, Ohio, fall '17; Ellington Field, Texas.
- KURTZMANN, CHRISTIAN (IX) 1st Lt., Q. M. C. Pvt., Off. Tr. Camp, 15 May '17; 2d Lt., Q. M. C., 29 Aug.; 1st-Lt., Apr. '18. 1st Tr. Camp, Madison Barracks, N. Y., 15 May '17; Camp Q. M. Office, Camp Dix, N. J., 29 Aug.; 303d Supply Tn., 78th Div. A. E. F., 27 May '18—6 June '19. St. Mihiel Offensive; Meuse-Argonne Offensive.
- LATIMER, R. C. (II) 1st Lt., Army Service Corps. 2d Lt., C. A. C., Aug. '17; 1st Lt., Army Service Corps, Feb. '19. A. E. F., 1 Mch. '18—5 July '19.
- LAZENBY, P. H. (I) Maj., 2d Canadian Engrs. (Pioneers). C. E. F., Mch. '16; Ypres, Mch.-Aug. '16; Somme, Aug.-Oct. '16; Arras Sector, Oct. '16; Vimy Ridge, Jan.—June '17.
- LOFTING, H. J. (III) 2d Lt., Irish Guards. B. E. F., Wounded in Flanders, July '17; invalided back from front, July '18. British Recruiting Mission, New York. Attached to Ministry of Information, Nov. '18; Speaker for United War Work Drive.
- LOUD, F. M. (VI) Ensign, U. S. N. R. F. M. M. 2 cl., U. S. N. R. F., 26 July '18; C. M. M., 1 Aug.; Warrant Machinist, 21 Nov.; Ensign, 1 May '19. U. S. N. Steam Engineering School, Stevens Institute, Hoboken, N. J., 26 July '18; Transport Service, 4 Dec. '18. See Civilian Record.
- LOUGEE, SHERMAN (I) Pvt., Inf. Entered Service, 24 June '18. 72d Inf., Camp Meade, Md.
- McAULIFFE, W. J. (I) C. M. M., U. S. N. R. F. Sea. 2 cl., U. S. N. R. F., 14 Mch. '18; C. M. M., Oct. Office of Cons. Officer and Inside Shop Supt., Charleston Navy Yard. See Civilian Record.
- McCLINTOCK, F. S. (II) Maj., C. A. C. Pvt., Off. Tr. Camp., 14 May '17; Capt., C. A. R. C., 15 Aug.; Maj. C. A. C., 15 Sept. '18. Detached Service, C. A. Sch., Ft. Monroe, Va., 15 Aug. '17; Office of Chief of C. A., Washington, D. C., 4 Sept. '18—14 May '19.
- MANSON, A. J., (formerly Menzinski), (III) 1st Lt., Ord. Corps. Inspection Div., Washington, D. C., Army Inspector, Field Service Div., Ord. Dept., June '18.
- MARTIN, T. DE V. (II) Pvt. 1 cl., C. W. S. Entered Service, 22 June '18. Co. A, 2d Bn., Edgewood Arsenal, Edgewood, Md. See Civilian Record.
- MARVIN, D. P. (XIII) Capt., U. S. Coast Guard. Entered Service, U. S. Coast Guard, '09; 3d Lt., 6 Apr. '17; 2d Lt., 31 May '18; 1st Lt., July; Capt., 1 Sept. '18. On U. S. Coast Guard Ship, Unalga, prevented German ships escaping from harbor, Apr. '17; assisted in taking military census of Alaska for the draft; Watch Officer during eight convoy trips to the vicinity of the Irish Coast, U. S. S. Denver, Dec. '17—Nov. '18.
- NICHOLS, R. H. (XI) reported in Aviation Sect., Sig. C.
- OHNUKI, T. R. (II) Capt., Imperial Japanese Navy. Officer, Imperial Japanese Navy, '91; Lt. Comdr., '14; Comdr., Dec. '14; Capt., Dec. '18. Engr. Officer, Repair Ship at Tsingtau, China; took part in capture of Tsingtau, and organized captured dockyard and refloated ships sunk by the Germans; in Italy to inspect submarines built for Japanese Navy, spring '16. Third Order of the Rising Sun from Emperor of Japan; Fourth Order of Saints Maurizio and Lazzaro from the King of Italy. (Page 241.)
- PALMER, G. T. (VII) Capt., Sn. C. 1st Lt., Sn. C., 26 Sept. '17; Capt., 12 Apr. '18. Medical Off. Tr. Camp, Camp Greenleaf, Ga., Sept. '17; in Surgeon General's Office, Washington, D. C., making special investigations of ventilation of barracks and hospitals and doing epidemiological work, studying the occurrence and causes of communicable disease in camps, Feb. '18—June '19.
- PERRY, F. G. (VI) Capt., C. A. C. Pvt., 1st Off. Tr. Sch., 12 May '17; 1st Lt., C. A.; Capt., 15 Aug. '17. Student at 1st Off. Tr. Camp; Inst., Off. Tr. Camp, Ft. Monroe, Va. A. E. F., 26 Sept. '18—25 Mch. '19; Army School of the Line, Langres, France; in command of Co. at Blois, Dec.; St. Aignan; C. O. Casual Co., on ship, 25 Mch. '19.
- PUTNAM, H. R. (II) Capt., Engrs. Entered Service, 18 Feb. '18. At General Engr. Depot, Washington, D. C., purchasing supplies and equipment for 27th Engrs. (Mining) and 28th Engrs. (Quarry), and for Road Making Bns., 18 Feb. '18; Representative of Engrs. in estimation of future requirements of supplies and equipment, Storage and Purchase Dept., General Staff, June; Engr. Off. Tr. Sch., Camp Humphreys, Va., Aug.; C. O., Co. E, 564th Engrs., (Picked Co. of S. A. T. C. men), Oct. '18.
- RADFORD, C. W. (I) Adj., Canadian Cav. Lt., Cav., 6 Dec. '15; Adj. and Paymaster, 15 Feb. '17. Lt., Depot Sq., 34th Ft. Garry Horse, Winnipeg, Man., 6 Dec. '15; training men at Winnipeg and Camp Hughes '16; Adj. and Paymaster, 15 Feb. '17—1 Oct. '18.
- RICE, E. T. (III, V) Capt., Sig. C. Entered Service, 5 Aug. '18. A. E. F., 17 Aug. '18—13 Feb. '19; Camp Bougnen, France; Hq., S. O. S., Tours, in charge of reorganization of Sig. C. Repair Shops in the Intermediate and Advance Sections, S. O. S., Sept. '18.
- RIEFKOHLE, R. W. (II) Maj., C. A. C. Entered Service, 4 Mch. '12; 1st Lt., 1 July '16; Capt., 15 May '17; Maj., 3 Aug. '18. 63d Arty., C. A. C. A. E. F., 14 July '18—'19; Argonne, 30 Sept.—9 Oct.; Adj., Casual Off. Depot, Blois, 14 Jan. '19; Chief of the Inspection Dept., later Adj., Army Service Corps, Hq., S. O. S., Tours, 15 Feb. In charge of Motor Transportation, American Polish Relief Expedition, Warsaw, Poland, fighting typhus fever, 7 Oct. '19.

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- ROSENBLATT, A. M. (VI) 1st Lt., Engrs. Entered Service, 10 Dec. '17. Engr. Off. Tr. Camp, 25 Sept. '17; 302d Engrs., 10 Dec. '17; 33d Engrs., 1 Jan. '18. A. E. F., 8 May '18—1 June '19; Adj. of U.S.S. Dwinsk; Adj. of Detached Bn., 33d Engrs.; after armistice, attached to Sect. Engrs. Office, Brest, in charge of lighting of Camp Pontanazen, and installing machinery for water supply.
- RYERSON, E. L. (I) Capt., A. S. A. 1st Lt., A. S. P., 15 Aug. '17; Capt., A. S. A., 16 July '18. Engr. Officer, March Field, Riverside, Calif., Aug. '18; rated R. M. A., from March Field; Disch. 21 Feb. '19. See Civilian Record.
- *SCHAEFFER, HAROLD (III). See Roll of Honor (page 98).
- SCHARFF, M. R. (XI) Capt., Engrs. 1st Lt., Engrs., 19 Oct. '17, (commissioned 1 Feb. '17); Capt., 5 Nov. '18. A. E. F., 19 Oct. '17—4 Mch. '19; Asst. in Div. of Water Supply and Sewerage, Office of Director of Cons. and Forestry, S. O. S.; in charge of Div. of Water Supply, Office of Sect. Engr., Base Sect. No. 2, Bordeaux, 17 June '18; Asst. to Deputy Chief Engr., 31 Oct.; in charge of Computation and Drafting Sect., War Damages Service, U. S. Comm. to Negotiate Peace, 10 Dec. '18. See Civilian Record and pages 61, 219 and 318.
- SHELL, F. R. (VI) Maj., Inf. 1st Lt., Inf. O. R. C., 6 Nov. '16; active duty, 8 May '17; Capt., 15 Aug. '18, Maj., 24 Aug. '18. 1st Plattsburg Tr. Camp, 8 May '17; C. O., 12th Co., N. Y. Regt., 2d Plattsburg, T. C., 22 Aug.; C. O. 1st Co. and Senior Inst., 3d Off. Tr. Camp, Camp Upton, N. Y., 5 Jan. '18; Co. and Bn. Comdr., 152d Depot Brig., Camp Upton, 1 May. A. E. F., 26 Sept. '18—25 Apr. '19; Graduated General Staff College, 1 Jan. '19; in charge of investigation of damages to waterways of France for Peace Comm., 27 Jan.; 4th Sect., General Staff, G. H. Q., Chaumont, 22 Feb. '19.
- SCHNEIDER, FRANZ, JR. (VII) Maj., General Staff. Capt., Mch. '18; Maj., Aug. '18. Chief of Shipping Sect., Statistics Branch, General Staff, Aug. '18; Member of General Staff, Nov. '18—Apr. '19. See Civilian Record.
- SHAW, A. L. (I) Capt., Engrs. 11 June '17. Pvt., Off. Tr. Camp, 14 May '17; Capt., Engrs., 11 June '17. 1st Off. Tr. Camp, Plattsburg, 14 May '17; Engrs., 76th Div., Camp Devens, Mass., 11 June '17. A. E. F., 14 July '18—13 June '19; Regt. detached from 76th Div., assigned as Corps Engrs., 4th Army Corps, Aug. '18. St. Mihiel Offensive; Toul Sector, 17 Sept.—11 Nov.; Army of Occupation.
- SHERMAN, H. L. (I) Pvt., 1st Co., Los Angeles Coast Artillery, 4 Nov.—13 Dec. '18. Armistice prevented going to C. A. Off. Tr. Sch. Refused for Engrs. on account of poor eyesight.
- SMITH, X. R. (XIII) 1st Lt., Ord. Corps. Entered Service, 19 Nov. '17. Small Arms Div., Ord. Dept., at Remington Arms Co., Winchester Arms Co., and in Washington, D. C., studying methods of mfr. of 1917 Service Rifles, and in charge of procuring spare parts for rifles.
- SODERSTROM, F. H. (III) 2d Lt., Engrs. Pvt., Engrs., 25 Jan. '18; 2d Lt., 8 July. Co. B, 27th Engrs., Camp Meade, Md.; Co. P, 21st Engrs.
- STIEBEL, H. J. (III) Candidate, F. A. Cent. Off. Tr. Sch., Camp Taylor, Ky., Sept. '18.
- STRAUS, A. H. (VII) 1st Lt., Sn. C. Entered Service, 20 Nov. '17. A. E. F., 11 Jan. '18—2 Feb. '19; Army Laboratory No. 1; general diagnostic laboratory work.
- SVARZ, LOUIS (IV) Pvt., F. A. Cent. Off. Tr. Sch., Camp Taylor, Ky.
- TETLOW, JOHN (X) Lt. (j. g.), U. S. N. R. F., Ensign, U. S. N. R. F.; 25 Jan. '18; Lt., (j. g.), 2 Nov. Asst. Naval Inspector of Ord., New England Dist., stationed at Waterbury, Conn., inspection of Waterbury Speed Gear, cartridge cases, powder and cartridges, 14 Feb. '18; U. S. Naval Ord. Plant, Baldwin, L. I., 7 Mch. '19, mfg. 3", 4", and 5" illuminating projectiles used by N-C boats on trans-Atlantic flight.
- THOMPSON, REBECCA H. (IV) C. Y. (F.), U. S. N. R. F. Drafting Room, Navy Yard, Washington, D. C.
- *THOMSON, STUART (V). See Roll of Honor (page 126).
- *TILLARD, T. A. (I). See Roll of Honor (page 89).
- TOBIN, J. J. (XIII) 1st Lt., Q. M. C. Entered Service, 24 Sept. '18. 304th Stevedore Engrs., and 110th Labor Bn., 24 Sept. '18. A. E. F., 26 Oct. '18—10 July '19; Night Warehouse Officer, Brest, 26 Oct. '18; Later Ex. Officer, Warehouse Div., Brest. See Civilian Record.
- TREUTHARDT, E. L. P. (V) Capt., Q. M. C. Entered Service, 11 Apr. '18. Office of Q. M. General, Washington, D. C., in charge of Food Investigation Sect., Inspection Branch, Q. M. C. See Civilian Record.
- TURNER, A. H. (I) Capt., Marine Corps. Entered Service, '17. A. E. F., 1st Bn., 6th Regt., U. S. Marines. Severely wounded in action.
- TURNER, CHANNING (IX) 1st Lt., F. A. Pvt., Off. Tr. Camp, 25 Aug. '17; 1st Lt., F. A., Nov.; 146th F. A. A. E. F., Feb. '18—July '19; F. A. Instruction School, Saumur, France, Feb. '18; Adj., June, 145th F. A., Aug. '18—Jan. '19; Adj., School Detachment, University of Dijon, France, Feb.—July '19. Montreuil-aux-Lions near Belleau Woods, July; Champagne-Marne Defensive; Aine-Marne Offensive; St. Mihiel Offensive; Meuse-Argonne Offensive; Army of Occupation, Coblenz Bridgehead.
- *VAN EETVELDE, RAYMOND (II). See Roll of Honor (page 88).
- VAN INWEGEN, W. B. (I) 1st Lt., Engrs. Entered Service, 15 July '17. A. E. F., 22 Jan. '18—12 June '19; 1st Bn. Hq., Guisseauville. St. Mihiel Offensive; Meuse-Argonne Offensive.
- *WARE, E. A. (VI). See Roll of Honor (page 109).
- WELLS, E. E. (X) Pvt., Canadian Off. Tr. Camp.
- WHITNEY, L. F. (II) Capt., Sig. C. 1st Lt., Aviation Sect., Sig. C., 25 June '17; Capt., Sig. C. Office of Chief Sig. Officer, June '17. A. E. F., July '18—Jan. '19.

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- WILSON, C. T. (I) Lt., C. E. C., U. S. N. Lt. (j. g.), C. E. C., U. S. N., 13 May '18; Lt., Jan. '19. Hq., 5th Naval Dist., Hampton Roads, Va., in charge of operation and organization of Civilian Labor Corps and the distribution of this labor to the various construction jobs in Norfolk and Portsmouth (Va.) dist., May '18—Sept. '19.
- WISWALL, P. M. (V) Capt., C. W. S. 1st Lt., Sn. C.; Capt., C. W. S. Hero Mfg. Co., Philadelphia, Pa., Apr. '18; Gas Defense Div., Jan. '19.
- WOOD, F. B. (III) 1st Lt., Ord. R. C. Entered Service, 20 Aug. '17. Inspector, Small Arms Ammunition at the Remington Arms Union Metallic Cartridge Co., Bridgeport, Conn., in charge of inspection of raw materials and accessories; did experimental metallurgical work with cartridge case metals.
- 1910
- ADLER, L. M. (II) 2d Lt., Inf. Entered Service, June '18. Camp Pike; attached to 4th Co., 1st Bn., 1st Regt., 159th Depot Brig., Camp Taylor, until 12 Dec. '18.
- ALLEN, MITCHELL (I) 2d Lt., Aviation Sect., Sig. C. 5th Cons. Sq., 31 Oct. '17. A. E. F., 1 Apr.—25 Nov. '18.
- ALLEN, R. H. (II) Capt., Engrs. Co. C, 308th Engrs., Camp Sherman, Ohio, Dec. '17. Topographical Officer 308th Engrs., Hq., A. E. F., in Nov. '18. Army of Occupation.
- ALLING, R. B. (I) Candidate, F. A. Cent. Off. Tr. Sch., 26th Training Btry., Camp Taylor, Ky., 15 Oct. '18.
- ALMY, CHARLES, JR. (X) Lt.-Col., C. W. S. Capt., Sn. C., N. A., Gas Defense Service, 31 Dec. '17; transferred C. W. S. and commissioned Maj., 13 July '18; Lt.-Col., 25 Oct. '18. A. E. F., on special mission, 1 May—1 June '18, and 1 July—1 Sept. '18.
- ANDERSON, M. P. (XIII) 1st Lt., Ord. R. C. F. A. Sect., Carriage Div., Ord. Dept., at Washington, D. C., purchasing optical instruments for F. A., Nov. '17—Jan. '18; transferred, Arty. Sect., Procurement Div., Ord. Dept., Jan. '18; purchased optical instruments for the entire Ord. Dept., Jan.—Aug. '18; in charge of procurement of all optical instruments for the entire Army, including Corps of Engrs., Aircraft and Sig. C., 8 Aug. '18—1 Feb. '19.
- APPLIN, F. D. (VI) Lt.-Col., C. A. C. 2d Lt., 11 Oct. '09; 1st Lt., 7 July '11; Capt., 28 Jan. '17; Maj., 10 May '18; Lt.-Col., 26 Sept. '18. Trained regts. of Hv. Arty. at Camp Eustis, Va.
- ARKELL, W. C. (I) Capt., Ord. Corps. 1st Lt., 2 Aug. '17; Capt., Jan. '18. Supply Div., Washington, D. C.
- ARMES, R. K. (XI) 1st Lt., Ord. Corps. Candidate, 2d Tr. Camp, Plattsburg, N. Y., 23 Aug. '17; Capt., Ord. Corps. '17 Nov. '17. Camp Meade, Ord. Off. Tr. Sch., Dec. '17; C. O., 8th Co., 1st Prov. Regt., Amer. Ord. Base Depot in France, Camp Jackson, S. C., Jan.—Feb. '18; 103d Ord. Depot Co., in charge of storehouses, Supply Div., Camp Devens, Feb.—June '18; Supply Div., Distributing Officer on Tanks and Tractors, Washington, D. C., June '18—4 Aug. '19.
- *AUSTRIAN, S. B. (I). See Roll of Honor (page 97).
- BAKER, F. A. (II) 1st Lt., Ord. R. C. Office of Chief of Ord., Washington, D. C., before May '18.
- BATCHELLER, STILLMAN (III) 1st Lt., Engrs. Engr. Off. Tr. Camp, Camp Humphreys, Va., before Apr. '19.
- BATSNER, A. G. (II) 1st Lt., Inf. 1st Lt., Inf. R. C.; Co. A, 339th Inf., Camp Custer, Mich., before Jan. '18; Co. K, 339th Inf. Archangel, Russia, in Nov. '18.
- BELL, F. F. (II) Capt., A. S. A., Reserve Military Aviator. Lt., Aviation Sect., Sig. R. C., '17; Capt., A. S. A., 23 Aug. '18. While taking flying training, trained recruits and organized aero squadrons, 20 July '17—15 Apr. '18; C. O., 45th, 143d, and 195th Aero Squadrons at different times, Chandler Field, Pa., and Gerstner Field, La.; Post Adj., Asst. Engr. Officer, and Engr. Officer, Gerstner Field, Instr. in formation flying, 15 Apr. '18—Jan. '19.
- BENTON, C. R. (I) Sgt. 1 cl., Engrs. Pvt., Engrs., 29 Sept. '17; Sgt., 1 Mch. '18; Sgt. 1 cl., 15 Oct. '18. 29th Engrs., 29 Sept. '17; transferred to Co. B, 74th Engrs., 15 Dec. '18. A. E. F., 15 Feb. '18—25 Feb. '19. Seicheprey, 20 Apr. '18; Aisne-Marne Offensive, 18 July—12 Aug. '18, St. Mihiel Offensive, 12-16 Sept. Cited, 29 June '18. (Page 157.)
- *BIGELOW, BRAXTON (III). See Roll of Honor (pages 90 and 166).
- BOLTE, G. W. (II) 2d Lt., F. A. A. E. F., before Feb. '18; with Btry. A, 18th F. A., Bourges, France, in Feb. '19.
- BRIGGS, L. E. (II) Capt., Ord. Corps. Commissioned, 3 Jan. '18. Mech. Engr., Ord. Dept. at large, 1 Aug. '17; special study of machine gun designs, Springfield Armory, Springfield, Mass., Sept.—Oct. '17; Army Inspector of Ord., and Officer in Charge for organizing and supervising Govt. Inspection forces, Remington Arms, Bridgeport, Conn., Nov. '17—Oct. '18; Army Inspector of Ord. and Officer in Charge of mfg. and inspection of Browning machine guns, aircraft guns and tank guns at New England Westinghouse Co., Springfield, Mass., Smith & Wesson's plant and twenty other plants near by, Oct. '18—Aug. '19; Chairman, Local Govt. Claims Comm., settling claims arising from cancellation of contracts.
- BROWN, DALLAS, JR. (II) Sgt. 1 cl. Engrs. Entered Service, 30 Mch. '18. A. E. F., June '18—Mch. '19; 317th Engrs., 92d Div., Vosges Mts. and Argonne Forest.
- BRUNET, E. L. (VI) reported for military service, 2 Aug. '18, discharged because of physical disability, 6 Aug. '18.
- CARLISLE, T. W. (II) Maj., Ord. Corps. Capt., 25 Apr. '17; Maj., 22 Jan. '18. Thirty months' service in U. S., Small Arms Div., Ord. Dept.
- CHANTRY, A. J. (XIII) Lt. Comdr., C. C., U. S. N. Hull Div., Navy Yard, Philadelphia, Pa.

REGISTER OF MILITARY RECORDS

- CHAPIN, M. S. (XIII) 1st Lt., Ord. Corps. Commissioned, 18 Aug. '17. General Adm. Div., Ord. Dept., Washington, D. C., 22 Aug. '17—17 Dec. '18.
- CHURCHILL, H. W. (VI) Capt., Ord. Corps. 1st Lt., 9 July '17; Capt., 25 Mch. '19. U. S., July '17 to date (Aug. '19); special detail in office of Chief of Ord., July '17; Army Inspector of Ord., American Can Co., Aug.—Dec. '17; Asst. Army Inspector of Ord., Detroit, Mich., Jan.—Mch. '18; Army Inspector of Ord. of 110 plants in Detroit and other cities in Mich., Apr. '18—Aug. '19; Member, Claims Bd. Staff, Detroit Dist. Office, Feb. '19.
- CLAPP, DUDLEY (X) Capt., C. W. S. 1st Lt., Gas Service, Sn. C., N. A., 10 Sept. '17; Capt., C. W. S., July '18. A. E. F., 12 Nov. '17—16 Nov. '18; went to France with first of Gas Defense Training Sect.; with 42d Div., when first in trenches in Lorraine; Asst. to Chief of Gas Defense, Tours; Asst. to Chief Gas Officer, Hq., 2d Army Corps and later Chief Gas Officer, 2d Corps. With British, at reoccupation of Mont Kemmel, and at Hindenburg Line north of St.-Quentin.
- CLEVERDON, H. S. (IV) 1st Lt., Engrs. Entered Service, 22 Aug. '17; active duty, Plattsburg, N. Y., 1 Oct. '17. A. E. F., June '18—June '19; 104th Engrs., 29th Div.; Liaison Officer, to 33d Div., operating on left of 29th Div., Meuse-Argonne Offensive; last ten days of Oct. '19, 58th Brig. Engr. Officer making reconnaissances and directing cons. of wire and barricades. Center Sector, Haute Alsace; Meuse-Argonne Offensive.
- COHEN, S. K. (I) Capt., Engrs. Pvt., Off. Tr. Camp, 8 May '17; 1st Lt., Engrs., 11 June; Capt., Aug. '19—1st Off. Tr. Camp, Plattsburg, N. Y., 8 May '17; 101st Engrs., 26th Div. A. E. F., 26 Sept. '17—3 June '19; 101st Engrs., training, cons. of barracks, until Feb. '18; Bn. Adj., later Co. Comdr.; Personnel Officer, Engr. Dept., Base Sect. No. 2, 8 Nov. '18; Office of District Engr., Tours, 26 Mch. '19. Soissons Sector (Chemin des Dames), Toul Sector (Seicheprey); Aisne-Marne Offensive; St. Mihiel Offensive; Meuse-Argonne Offensive. Company cited for work at Seicheprey. Gas burns at Château-Thierry.
- COURT, A. B. (XIII) Comdr., C. C., U. S. N. Comdr., 21 Dec. '18. At Philadelphia Navy Yard in charge of Engr. Sect., Hull Div., engaged in building, repairing and converting all types of surface and submarine vessels.
- COX, J. S. (XI) Capt., Ord. Corps. 1st Lt., 18 Oct. '18; Capt., 10 Mch. '19. Stationed at Washington, D. C., Trench Warfare Div., Ord. Dept. See Civilian Record.
- CREECY, C. E. (I) Capt., Sig. C. 1st Lt., Sig. R. C., 14 May '17; active service, 20 July '17; Capt., 3 May '18. Organized and trained 403d Telegraph Bn., Oct. '17; 417th Telegraph Bn., 3 May '18. A. E. F., 1 Sept. '18—6 July '19; in charge of operations and maintenance, 6th Army Corps telephone and telegraph system, 16 Sept. '18—Nov. '18, when 417th Telegraph Bn. transferred to 3d Army; maintained communication between 3d and 4th Army Corps on advance into Germany.
- CROMMIEFF, O. J. (II) 1st Lt., Engrs. Co. B, 97th Engrs., 26 July '18. Camp Leach, Washington, D. C., 12 Sept.—3 Dec. '18.
- CROSSLEY, F. T. (VI) 1st Lt., Q. M. C. Bu. of Fire Prevention, 23 May '18. A. E. F., 20 June '18—29 July '19; engaged in inspection and advisory work throughout the A. E. F., in the protection of U. S. and French property for which the U. S. was liable from loss or damage by fire. See Civilian Record.
- DAVIS, W. S. (IV) Camouflage School, Langres, France.
- DEWEY, F. A. (II) Maj., C. W. S. Capt., Gas Defense Service, 22 Oct. '17; Maj., Mch. '18; transferred to C. W. S., July '18. Washington, D. C., Sept. '17—Apr. '18; transferred to Gas Defense Plant, Long Island City, New York.
- DIEHL, J. C. (I) Capt., Engrs. 1st Lt., 25th Engrs., 25 Sept. '17; Capt., 8 Oct. '18. A. E. F., 27 Feb. '18—23 May '19; in charge of construction at First Air Depot, Colombey-les-Belles, hosp. cons., Langres, warehouses and barracks at Montereau-Chaume; Co. Comdr., Co. E, 25th Engrs., in charge of construction of warehouses, barracks and engine houses; in charge of general construction, munition dumps, quartermaster storehouses and roads, Meuse-Argonne Offensive; general cons., First Army Area; Building cons. and operation of Brest-Pontanezen Railway. Meuse-Argonne Offensive.
- DILLON, P. L. (VI) Ensign, U. S. N. R. F. C. M. M., 1 cl. '18. Bunkin Island, Charlestown Navy Yard, and in European waters. See Civilian Record.
- DREW, W. N. (X) Capt., F. A. Candidate, 15 May '17; 2d Lt., F. A., 15 Aug. '17; 1st Lt., 1 Jan. '18; Capt., 18 Mch. '19. A. E. F., June '18—5 May '19; 323d F. A. Meuse-Argonne Offensive.
- FABENS, A. L. (II) Capt., Ord. Corps. 1st Lt., 6 Aug. '17; Capt., 22 Jan. '18. In charge of production of helmets and mess equipment, Washington, D. C. (Page 262.)
- FERGUSON, G. O. (XI) 2d Lt., Inf., N. A. 310 M. G. Bn., before Feb. '18; 380th Inf., Camp Sherman, Ohio, in Mch. '19.
- FITZWATER, J. M. (I) Capt., Engrs. 1st Lt., 21 Aug. '18; Capt., 12 Sept. '18. Engr. Off. Tr. Sch. and 5th Engrs., Camp Humphreys, Va., 14 Sept.—6 Dec. '18. See Civilian Record.
- FLICKINGER, H. W. (II) Capt., A. S.
- FOLEY, P. L. (IV) 1st Lt., Engrs. Commissioned, July '18. Special duty, unassigned, July '18—Jan. '19. See Civilian Record.
- FOSTER, F. K. (III) Corp., C. A. C. Pvt., 1 May '17; Corp., 1 Sept. '18. Ft. Rodman, Mass., Camp Dix, N. J., 1 May '17—13 June '18; Btry. E, 73d Arty., June 13—5 Oct. '18. A. E. F., Oct. '18—22 Feb. '19; Liverpool, Eng., 6 Oct.—12 Nov. '18; France, Hv. Arty. Training Bn., 12 Nov.—24 Dec. '18; Btry. C, 54th Arty., C. A. C., 24 Dec. '18—13 Mch. '19. (Page 230.)
- GAWNE, J. O. (XIII) Comdr., C. C., U. S. N. Navy Yard, Mare Island, Calif. (Page 249.)

TECHNOLOGY'S WAR RECORD

- GIBBS, D. W. (IV) Capt., Engrs. 1st Lt., 8 May '17; Capt., 10 Aug. '18. A. E. F., 26 Nov. '17—28 May '19; Cons. in S. O. S.; Engr. Officer in charge of cons., Base Hospital No. 101, St. Nazaire; Base Hq., building for Gen. Walsh; Central Records Office, Bourges; road repair and maintenance and on quarry work, stationed at Mehun-sur-Yevre and Monthou near St. Aignan; Bn. Comdr., 501st Engrs., as senior capt. after 10 Mch. '19. (Page 4.)
- GIVEN, J. A. (I) Capt., Engrs. With Co. E, 315th Engrs., 90th Div., Camp Travis, San Antonio, Texas, before Jan. '18. A. E. F., with 315th Engrs., Dec. '18. Army of Occupation.
- GOODSPEED, G. E., JR. (III) 1st Lt., Engrs. Presidio Training Camp, May '17. Disch., June '17.
- GOULD, A. A. (VI) Maj., M. T. C. Capt., Motors Div., Q. M. C., 1 May '17; Maj., M. T. C., May '19. A. E. F., Aug. '18—Aug. '19; special duty with British Mechanical Transport Service, Hq. 37th Div., Army Service Corps, Sept.—Oct. '18; Hq., M. T. C., Nov. '18—July '19. Baccarat Sector; Meuse-Argonne Offensive; Ypres-Lys Offensive.
- GREENE, E. D. (VI) 1st., Amer. Red Cross. A. E. F., July '18—Jan. '19.
- GUTHRIE, S. A. (III) Lt., Inf. Pvt., Off. Tr. Camp, 11 May '17; 1st Lt., Inf., 15 Aug. '17. Off. Tr. Camp, Ft. Sheridan, 11 May '17; 346th M. G. Bn., 91st Div., Camp Lewis, Wash., 13 Sept. A. E. F., 28 June '18—5 July '19; M. G. School, Gondrecourt; Bn. Adj., 346th M. G. Bn., Aug.; after armistice, engaged in settling claims against the American Army. St. Mihiel Offensive; Meuse-Argonne Offensive, 26 Sept.—14 Oct. '18.
- HAGUE, ALFRED (II) Lt. (j. g.), U. S. N. R. F. (A). B. M. 1 cl., U. S. N. R. F., 6 June '17; Cadet, U. S. N. R. F. (A.), M. I. T., 10 Feb. '18; Ensign, 6 June '18; Lt. (j. g.), Dec. '18. A. E. F., 13 July '18; Liaison Office at British Main Aircraft Experimental Station, Isle of Grain, England. Bu. of Operations (Aviation) 17 Mch.—27 May '19.
- HALE, H. A., JR. (II) Capt., C. W. S. Capt., 23d Regt. Engrs., 19 June '17; Capt., C. W. S., 28 Oct. '18. Disch., 6 Dec. '18.
- HARCOURT, G. N. (I) 1st Lt., C. W. S. 1st Lt., Engrs., 28 Dec. '17; transferred to C. W. S., Sept. '18. Engr. Off. Tr. Camp, Camp Lee, Va., Dec. '17; 24th Engrs., Camp Dix, N. J. A. E. F., Feb. '18—Apr. '19; 24th Engrs.; Asst. Div. Gas Officer for 4th Div. Meuse-Argonne Offensive.
- HARRISON, J. K. M. (II) Lt., U. S. N. R. F. Lt. (j. g.), 30 Oct. '17; Lt., 23 Mch. '18. Naval Inspector of Ord. under Bu. of Ord., Navy Dept., at L. E. Knott Apparatus Co., Cambridge, Mass., 5 Nov. '17; Inspector of Ord., H. E. Boucher Mfg. Co., New York City, 1 July '18—15 Oct. '19; in direct charge of mfr. of all firing gears for American mines used in North Sea Barrage. (Page 236.)
- HAWES, H. G., JR. (II) 1st Lt., Tank C. Commissioned, 8 Sept. '17; active duty, 28 Dec. '17. Casual, 2d Brig. and 5th Brig. A. E. F., England and France, 8 Feb. '18—14 Mch. '19; sent to England to study tanks and their operation; Adj., 2d Brig. (Heavy Tanks), and attached to British Tank Corps at front, May '18; attached to French Tank Corps, stationed at Bourg, Amer. Tank Camp, June—1 Aug. '18; transferred to Office of Chief of Tank Corp., G. H. Q., Chaumont, for three weeks; Liaison Officer to French Commandant of French tank unit acting under command American 3d Brig. through St. Mihiel Offensive; Chief Mechanical Instructor, American Tank Corps at Bourg, France; Mechanical Officer, 329th Bn. of 5th Brig. until 14 Mch. Gassed at Cantigny, 31 May '18.
- HEMMENTWAY, L. T. (VI) Lt. (j. g.), U. S. N. (A.). Ensign, 29 Apr. '18; Lt. (j. g.), 1 Oct. '18. Ex. Officer, Div. of Aviation, Washington, D. C.
- HELD, C. C. (II) Maj., F. A. Pvt., Off. Tr. Camp, 12 May '17; 1st Lt., F. A., 15 Aug.; Capt., 24 Mch. '18. Maj., 24 Oct. '18. First Tr. Camp, Camp Ft. Snelling, Minn.; 337th F. A., Camp Dodge, 29 Aug. '17; Student, and Inst., School of Fire, Ft. Sill, Okla., 15 Mch.—1 Aug. '18; Senior Inst., School of Fire, 1 Aug.—1 Dec. '18; Asst. Director, Dept. of Reconnaissance, School of Fire, 1 Dec. '18—31 Jan. '19.
- HIGBIE, H. A. (VIII) served in Dept. of Military Affairs, Amer. Service Fund Sect., Amer. Red Cross, at Paris and Bordeaux, making investigations and doing relief work among both French and Americans.
- HILL, R. F. (II) 1st Lt., Ord. Corps. Rochester Dist., Inspection Office, before Apr. '18; Army Inspector of Ord., Bausch & Lomb Optical Co., Rochester, N. Y., before Mch. '19.
- HILLIARD, C. M. (VII) 1st Lt., Sn. C. Camp Greenleaf, 8 Aug. '18; Camp Sanitary Engr., Camp Taylor, 2 Oct. '18—8 Feb. '19.
- HILLIARD, R. B. (XIII) Comdr., C. C., U. S. N. Constructor, Navy Dept., Washington, D. C., and Supt Constructor's Office, Fore River, Mass., in Mch. '19.
- HINDS, H. S. (I) Ensign, U. S. N. (A.), 20 May '17. Inst. in flying, Naval Air Station, Pensacola, Fla.
- HOPKINS, P. S. (III) 1st Lt., 140th Engrs., 101st Div. Service in U. S., 26 July '18—14 Dec. '18.
- HORTON, W. H. (VI) Capt., Ord. Corps. Sandy Hook Proving Ground, Ft. Hancock, N. J., Oct. '17—Mch. '19.
- HOWE, E. S. (VI) 2d Lt., Engrs. Pvt., 1 cl., Off. Tr. Camp, 16 May '18; 2d Lt., Engrs., 9 Nov. '18. Camps Devens, Mass., Lee and Humphreys, Va., 16 May—29 Oct. '18; transferred to 553d Engr. Ser. Bn., Camp Humphreys, Va. Disch., 26 Dec. '18.
- HUERDLER, E. G. (III) Ensign, U. S. N. Appr. Sea., U. S. N., Marine Engr., July '18; C. P. O.; Warrant Officer Ensign. Cruise on U.S.S. Moccasin; Asst. Engr., U.S.S. George Washington, 12 July—2 Dec. '19. See Civilian Record.
- JACKSON, E. R. (IV) 1st Lt., Ord. Corps, Army Inspector, Ord. Inspection Div., Royal Wheel Co., Aurora, Ill.

REGISTER OF MILITARY RECORDS

- JACOBS, R. C., JR. (XI) 2d Lt., Inf. Pvt., 29 May '17; Sgt., Co. B, 14th Engrs., 1 July '17; 2d Lt., Inf., 13 May '18. A. E. F., 12 Aug. '17—Aug. '18; attached to British Army, 18 Aug.; Army Candidate School, 4 Dec. '17; 26th Inf. with French Army, 15 Mch. '18; Inf. Specialist School, 9 Apr. '18; Army Engr. School, 30 Apr. '18; 8th Inf., 19 May '18—21 Aug. '18; U. S. Recruiting Service, Aug. '18. British Sector (Cambrai), '17; Somme Defensive, with French, Mch. '18; Toul Sector, June '18; Frapelle, Vosges, Aug. '18. Gassed in German Offensive, Mch. '18.
- JENCKES, E. K. (V) Capt., Inf. Pvt., Off. Tr. Sch., 5 Jan. '18; Sgt.; 2d Lt., Inf., 17 July; 1st Lt., 4 Oct.; Capt., 18 Feb. '19. 3d Off. Tr. Sch., Camp Upton, N. Y., 5 Jan.—7 Apr. '18. A. E. F., 28 Apr. '18—24 May '19; Co. H, 306th Inf.; Liaison Officer, 2d Bn., 126th Inf., 7 Aug.—15 Nov.; later, Regt. Liaison Officer; in command, Co. G, 126th Inf., 18 Feb. '19. Aisne-Marne Offensive; Oise-Aisne Offensive; Meuse-Argonne Offensive; Army of Occupation.
- KANE, I. P. (XI) Maj. Engrs. Capt., 1 May '17; Maj., 2 May '19. C. O., Co. A, 305th Engrs., 27 Aug. '17—27 Mch. '18; Adj., 45th Engrs., 1 Apr. '18. A. E. F., 10 July '18—1 Aug. '19; C. O., 45th Engrs., 10 Sept. '18; Adj., 14th Grand Div., Transportation Corps, 27 Dec. '18—10 July '19.
- KELLOGG, J. W. (VII) Capt., Sn. C. 1st Lt., 4 Jan. '18; Capt., 17 Feb. '19. A. E. F., 26 May '18—24 May '19; C. O., 108th Mobile Laboratory attached to 108th Sn. Train, 33d Div.
- KNOX, H. G. (XIII) Comdr., C. C., U. S. N. Entered Service, 25 Sept. '02. Shop Supt., Navy Yard, Norfolk, Va.
- LANE, S. B. (I) Sapper, Canadian Engrs. Entered Service, 22 Apr. '18. Co. Sgt. Maj., Apr.—June '18. C. E. F., July '18—Feb. '19; Bn. Draftsman, Hq., 2d Bn., Canadian Engrs. Somme Offensive (Cambrai to Mons).
- LEAVENS, KENNETH (I) 1st Lt., Engrs. Enlisted at Paris, 1 Aug. '17; detached service at various stations in France until 3 Sept. '19; Line of Communications; Ba. of Fire Prevention.
- LEWIS, R. W. (V) Maj., Engrs. Pvt., Corp., Sgt., 15th Prov. Training Co., 10 May—11 June '17; 1st Lt., 19 June; Capt., 2 Jan. '18; Maj., 30 Oct. '18. A. E. F., 7 Aug. '17—Feb. '18. Liaison Officer in U. S., Mch. '18—July '18, A. E. F., July '18—Mch. '19. Staff duty, G. H. Q., A. E. F., G. H. Q., B. E. F., Hq., 2d Army; C. O., 2d Bn., 56th Engrs.; Searchlight Officer, 2d Army; Office, Chief of Engrs. Disch., June '19.
- LOCKETT, HAROLD (II) Capt., F. A., 27 Aug. '17. Casual at Camp Merritt, 6 Jan.—24 July '18. A. E. F., 7 Aug. '18—29 June '19; French Artillery School until 7 Nov.; work in casual camps after armistice.
- LONGYEAR, J. M., JR. (III) 2d Lt., C. A. R. C. Pvt., 4 Aug. '18; 2d Lt., 6 Dec. '18. 5th Co., Coast Defense of Chesapeake Bay, Ft. Howard, Md., 4 Aug. '18; C. A. Tr. Sch., Ft. Monroe, Va., 27 Sept.—6 Dec. '18.
- MAGEE, G. H. (I) 1st Lt., Sig. C. Candidate, 27 Aug. '17; 2d Lt., Sig. C., 27 Nov. '17; 1st Lt., 6 Oct. '18. 2d Tr. Camp, Ft. Myer, Va., 27 Aug.; Off. Tr. Bn., Camp Vail, N. J., 27 Nov. '17. A. E. F., 13 Jan. '18—5 July '19; Signal School, 2d Corps Schools, Chatillon-sur-Seine; at front with 85th and 27th French Inf. Regts. for two weeks; assigned to duty under Sig. Officer, Hq. Intermediate Sect., S. O. S., 30 Mch. '18; Property Officer, Sig. C., Intermediate Sect., S. O. S., 1 July '18.
- MALONE, J. F., JR. (XIII) 1st Lt., A. S. Member Troop I, 1st N. Y. Cavalry, Mexican Border, July 16—Apr. '17; 2d Lt., Cav., Madison Barracks, 1st Training Camp; 312th U. S. Inf., Camp Dix, N. J., 11th U. S. Inf., 28th Div., Sept.—Dec. '17; transferred to Air Service, Dec. '17. A. E. F., Jan. '18—May '19; trained in England for five months; 86th Aero Sq., France, Aug. '18. St. Mihiel Offensive, Meuse-Argonne Offensive. Certificate of Merit.
- MASON, A. B. (I) 1st Lt., A. S. A. Driver, Sect. 4, Amer. Field Ambulance Service, 4 Mch. '16; in command, Sect. 8, at front with French Army, 1 May '16—1 Apr. '17. Section cited for Croix de Guerre three times, 2d Lt., Aviation Sect., Sig. C., 11 Jan. '18; 1st Lt., A. S. A., 2 Apr. '19. Detached service, Garden City Concentration Camp, 11—25 Jan. '18; Washington, D. C., 26 Jan.—6 Nov. '18; Indianapolis Repair Depot, 9 Nov.—27 Dec. '18. Croix de Guerre (two citations). See Civilian Record and page 149.
- MERRILL, E. F. (II) 2d Lt., Ord. Corps. Pvt., 2d cl., 3 Apr. '18; Sgt., 28 June '18; 2d Lt., 23 Oct. '18. 10th Recruit Co., Columbus Barracks, Ohio; Edgewood Arsenal, Md., 10 Apr.—20 July '18; Ord. Engr. Tr. Sch., 20 July—23 Oct. '18; Proof Officer, Aberdeen Proving Grounds, Md., 23 Oct. '18—1 Apr. '19.
- MERRY, A. B. (I) 1st Lt., Engrs. Pvt., 302d Inf., 4 Oct. '17; 2d Lt., Engrs., Mch. '18; 1st Lt., 29 June '19. Transferred from Inf. to Engrs., Oct. '17; Engr. Off. Tr. Camp, Camp Lee, Va., 1 Jan. '18; Supply Officer, 526th Engrs., Camp Pike, Ark. A. E. F., 10 July '18—13 July '19; construction of hospital at Rimancourt; cons. of a railroad yard Liffol-le-Grande; cons. of hospital, Beaune; in charge of small detachment, Pontarlier, near Swiss border, trans-shipping portable barracks, Nov. '18—Feb. '19; attended Art Training Center, Paris, Mch.—July '19.
- MYER, A. J., JR. (IV) Maj., Cav. A. E. F.; Adj. and Supply Officer, Horses Sect., 1st Ammunition Train, 1st Div.
- NAGLE, A. R. (I) 2d Lt., F. A. Pvt., F. A., 26 Sept. '17; Sgt., 23 Nov.; 2d Lt., F. A., 31 Aug. '18. Hq. Co., 301st F. A., Camp Devens, Mass., 26 Sept. '17; F. A. Off. Tr. Sch., Camp Taylor, Ky., June '18; Inst., F. A. Repl. Depot, Camp Jackson, S. C., 31 Aug.—6 Dec. '18.
- NICHOLS, W. R. (VI) Lt.-Col., C. A. C. In War Dept., Washington, D. C., Feb. '18; C. O., Torpedo Depot, Ft. Totten, N. Y. A. E. F.
- O'NEILL, J. H. (XI) Capt., Sn. C. Commissioned 28 Nov. '17. Camp Sheridan, Ala., 1 Dec. '17—25 July '18; Camp Sevier, S. C. and Camp Humphreys, Va., July '18—14 Feb. '19.
- PERLEY, H. C. (II) Engr. in transport service. See Civilian Record.

TECHNOLOGY'S WAR RECORD

- PETTINGELL, W. M. (X) Pvt., F. A. Btry. A, 1st New Hampshire F. A. (afterwards Btry. D, 103d F. A., 51st Arty. Brig., 26th Div.), 6 June '17. A. E. F., Oct. '17—Apr. '19. Aisne Sector (Chemin des Dames), 6 Feb.—17 Mch. '18; Toul Sector (Seicheprey), (Xivray), 4 Apr.—27 June; Champagne-Marne Defensive, 17 July; Aisne-Marne Offensive, 17 July—4 Aug.; St. Mihiel Offensive, 12-15 Sept.; Verdun Sector, 16 Sept.—13 Oct.; Meuse-Argonne Offensive, 15 Oct.—11 Nov. '18.
- PHELPS, D. W. (IV) C. Q. M., U. S. N. R. F. (A.), Sept. '18. See Civilian Record.
- PILLING, E. W. (I) Mr. Engr. (sr. gr.) Engrs. Pvt., Engrs., 27 Feb. '18; Sgt., May '18; Mr. Engr. (sr. gr.), Aug. '18. A. E. F., 13 July '18—13 June '19, 301st Engrs. St. Mihiel Offensive, Sept. '18; Toul Sector, Sept.—Nov. '18; Army of Occupation, Nov. '18—May '19.
- PIPER, C. F. (III) Sgt., C. W. S. Pvt., Ord. Corps, 20 Mch., '18; transferred C. W. S., June '18; Corp., July '18; Sgt., Nov. '18. Chemist, Govt. plant at Niagara Falls, N. Y., producing phosgene gas; analyses of products made and used in plant, Mch.—21 Dec. '18.
- POPE, R. L., reported Lt., U. S. A.
- POTTER, E. M. (VI) Capt., Engrs. Pvt. Off. Tr. Camp, 13 May '17; 1st Lt., Engrs., 21 June; Capt., 10 Aug. '18. 1st Off. Tr. Camp, Plattsburg, N. Y., 13 May '17; 1st U. S. Engrs., 21 June. A. E. F., Aug. '17—Nov. '18; in charge of cons., 1st Corps Sch., Gondrecourt; rejoined 1st Engrs., 1st Div., Jan. '18; in command Engr. Tn., Jan.—July; in command of a pioneer engr. company, July—Nov.; served as reserve Inf. Ansanville Sector; Cantigny Sector; Aisne-Marne Offensive; St. Mihiel Offensive; Meuse-Argonne Offensive. Disch., 31 Jan. '19. (Page 179.)
- PRESTON, R. A. D. (II) Lt., U. S. N. R. F., Naval Aviator, Dirigible, attached to Bu. of Cons. and Repair, 4 June '18. Navigated Dirigible C-1, from Akron, Ohio, via Washington to Rockaway, L. I., N. Y., the first successful airship flight from Akron to the coast. See Civilian Record and page 251.
- QUIRK, T. C. (I) Lt., U. S. N. R. F. Asst. Surgeon, Naval Medical School, Washington, D. C., in Arr. '18.
- RAGSDALE, E. J. W. (XIII) Lt.-Col., Ord. Corps. War Dept., Washington, D. C.; Chief, Trench Warfare Section., Ord. Dept.; Asst. to Chief of Ord. Experimental and research work on hand grenades, drop bombs, and trench mortars; Inspector of Ordnance, Bethlehem Steel Co. (Page 252.)
- REDMAN, E. A. (II) 1st Lt., Aviation Sect., Sig. C. 183d Aero Sq., Taliaferro Field No. 1, Texas, in Feb. '18.
- ROADS, G. M., JR. (III) Capt., F. A., N. A. Pvt., Off. Tr. Camp, 27 Aug. '17; 1st Lt., F. A. O. R. C., 27 Nov. '17; Capt., F. A., 12 Mch. '18. 2d Off. Tr. Camp, Ft. Oglethorpe, Ga., 27 Aug. '17; Btry. D, 319th F. A., 82d Div., Camp Gordon, Ga., 5th Div., Camp Logan, Texas, 25 Dec. '17; in command Co. E, 5th Am. Tn., Mch. '18—Dec. '18. A. E. F., 27 May '18—12 May '19; in command Horsed Bn., 5 Am. Tn., Dec. '18—Apr. '19; in command Police Area No. 1, Army of Occupation, 18 Dec. '18—21 Feb. '19; assigned Co. A, 307th Am. Tn., 82d Div., 7 Apr. '19. St. Die Sector; St. Mihiel Offensive; Thiacoct Sector; Army of Occupation.
- *ROBERTSON, H. A. (V). See Roll of Honor (pages 90 and 164).
- RODMAN, S. S., Capt., Sn. C. Pvt., 1 Aug. '17; Sgt., Ambulance Co., U. S. A., Base Hospital 27, 20 Aug. '17; 1st Lt., Sn. C., 21 Sept. '18; Capt., 11 Feb. '19. A. E. F., 27 Sept. '17—24 Mch. '19; Adj., Base Hospital 27, 21 Sept. '17—1 Aug. '18; Hq., Chief Surgeon's Office, detailed to Hospital Organization, 1 Aug. '18—29 Nov. '18; in charge Medical Supply Depot, Paris, 30 Nov.—12 Jan. '19.
- ROPER, T. A. (III) Capt., Ord. Corps. 1st Lt., 15 July '17; Capt., 14 Jan. '18. In Washington, July—Oct. '17. A. E. F., Nov. '17—Feb. '19, in charge of aircraft armament, machine guns, small arms, small arms ammunition in England. Member of Interallied Technical Information Comm. British Military Cross. (P. ge 146.)
- ROWE, L. G. (I) Capt., Ord. Corps. 1st Lt., 15 Feb. '18; Capt., 18 Sept. '18. Organization and Methods Sect., Ord. Dept., Washington, D. C., 15 Feb.—18 Sept. '18. A. E. F., 19 Sept. '18—5 Feb. '19; Chief of Ord. Div., Office of Chief Purchasing Agent for Great Britain, in charge of ordnance purchases in England.
- RUCKMAN, J. H. (II) Capt., Inf. 1st Lt., U. S. R., 1 Nov. '16; active duty. 8 May '17; 2d Lt., Inf., 15 Aug. '17; 1st Lt., 1 Jan. '18; Capt., 1 Nov. '18. Off. Tr. Sch., Ft. Myer, Va., 15 May '17; 80th Div., 15 Aug. '17; 157th Depot Brig., 1 Sept. '17; A. D. C., 179th Inf. Brig., in charge of communications and reconnaissance, 1 Oct. '17. A. E. F., 18 June '18—6 June '19; Adj., 179th Inf. Brig., 10 Nov. '18; Asst. G-2 Hq., 90th Div., 20 Dec. '18. Saizerais Sector; St. Mihiel Offensive; Puvellen Sector; Meuse-Argonne Offensive; Army of Occupation.
- RUSSELL, E. S. (II) 1st Lt., Ord. Corps. Pvt., Inf., 21 Nov. '17; 2d Lt., Ord. Corps., 9 Jan. '18; 1st Lt., 2 Sept. '18. Built experimental recuperators for mobile field arty. at Rock Island Arsenal, Ill.
- SAUL, T. W. (I) Capt., Tank C. 1st Lt., Engrs., 17 July '17; Capt., Tank C., 1 Nov. '18. 18th Engrs., Camp Murray, Wash., 12 June '17. A. E. F., 23 Aug. '17—18 Mch. '19; at Bordeaux, until 5 Nov. '17; detached service, with Director-Gen. of Transportation and Army Transport Service, until 6 Apr. '18; transferred to Tank C., assigned Hq. Co., 2d Bn. 304th Brig. (1st Brig.), 6 Apr.; assigned Hq. Co., 306th Brig., Tank C., 1 Nov. '18. St. Mihiel Offensive; Meuse-Argonne Offensive. Gassed, 3 Oct. '18. Distinguished Service Cross. (Page 136.)
- SCARFF, J. H. (IV) 1st Lt., M. T. C. Pvt., Off. Tr. Camp, 11 May '17; 2d Lt., M. T. C., 15 Aug. '17; 1st Lt., 10 July '18. 1st Off. Tr. Camp, Plattsburg, N. Y., 11 May '17; organized M. T. Co. 425 at Camp Johnston, Fla. A. E. F., 28 June '18—11 July '19; C. O., M. T. Co. 425, engaged in convoy work from Base Sect. No. 1 to the Front; Adj., Motor Reception Park 767, Nantes, France.
- SCHMIDT, H. C. (VI) Capt., O. R. C. Commissioned Oct. '17. A. E. F., Ord. Engr. Div., Tours, in Oct. '18.

REGISTER OF MILITARY RECORDS

- SCHOFIELD, W. M. (III) 1st Lt., F. A. Ft. Leavenworth, Kan., Btry F, 342 F. A., 89th Div. Army of Occupation.
- SCHUMANN-HEINK, HENRY, Ensign, U. S. N. R. F. Co. Comdr. Co. R, San Pedro, Calif., Dec. '17; U.S.S. Oregon, 2d Div., Pacific Fleet, San Francisco, in Mch. '19.
- SHAW, C. H. (VI) Maj., Engrs. Capt., 28 Dec. '17; Maj., 31 Oct. '18. Engr. Off. Tr. Camp, Camp Lee, Va.; Power Sect., War Industries Bd., reporting power supply of public utility power companies; Officer in Charge of New England Dist., Power Sect., War Industries Bd., Boston, Mass., Aug. '18—26 Apr. '19. (Page 310.)
- *SIMMONS, F. R. (IV). See Roll of Honor (page 108).
- *SMITH, C. M. (VI). See Roll of Honor (page 97).
- SPALDING, W. T. (IV) Capt., Engrs. R. C. Commissioned 11 June '17. Inactive, as army contracts made active status illegal. Resigned Dec. '17. See Civilian Record.
- STEIN, A. L. (VI) Sgt., Engrs. Entered Service 10 Sept. '17. A. E. F., 29 Mch. '18—10 May '19, with 302d Engrs. Baccarat Sector; Vesle Sector; Oise-Aisne Offensive; Meuse-Argonne Offensive. Wounded in Vesle Sector. Croix de Guerre with Palm.
- STOVER, F. H. (VII) Capt., Sn. C. Engr. O. R. C., 5 Sept. '17; 1st Lt., Sn. C., 2 Mch. '18; Capt., 3 May '19. A. E. F., 8 May '18—5 Sept. '19; 26th Engrs. (Army Water Service), 12 Jan. '18—11 Jan. '19; Central Medical Laboratories, Dijon, 13 Jan.—28 Feb. '19; Div. Water Supply Officer, Asst. Div. Sn. Inspector, Div. Bathing and Delousing Officer and Acting Sn. Inspector, First Div., 3 Mch.—Sept. '19. St. Mihiel Offensive; Sectors of First and Second American Armies. Army of Occupation.
- STUART, EDWARD (XI) Maj., Sn. C. Capt., 17 Aug. '18; Maj., 19 Feb. '19. On Balkan Front, Oct. '18—Apr. '19; in advance of Serbian Army through Serbia. Sn. Engr. Amer. Red Cross Sn. Comm. to Serbia, giving relief in typhus epidemic, Apr. '15; Director, Amer. Red Cross Sn. Comm. to Serbia, Sept. '15; Director, Amer. Red Cross Relief in the Balkans, Dec. '15—Apr. '17. Medal of Commander, San Sava, Serbia; Medal of Serbian Red Cross; recommended for Distinguished Service Medal of Amer. Red Cross. (Pages 154 and 292.)
- STUMP, H. E. (X) 1st Lt., 30th Engrs. Mr. Engr., 26 Oct., '17; 1st Lt., 1 Mch. '18. A. E. F., 26 Dec. '17—19 May '19. Meuse-Argonne Offensive.
- SUTHERLAND, C. H. (I) 1st Lt., Engrs. Pvt., Off. Tr. Camp, 5 May '17; 1st Lt., Engrs. R. C., 8 July. 1st Off. Tr. Camp, Plattsburg, N. Y., 5 May '17; 8th Engr. Tn., Ft. Bliss, Texas, Aug. '17—Mch. '18; 517th Engrs., Apr. '18. A. E. F., 21 July '18—19 July '19; Adj., 517th Engrs.; special duty, with 20th Engrs., Adv. Sect., S. O. S. (Vosges), Aug. '18; assigned 20th Engrs. (Forestry), Jan. '19; Student at University of Toulouse, Mch.—June '19.
- TERRY, P. D. (I) Maj., C. A. C. Capt., 27 Aug. '17; Maj., 26 Oct. '18. Btry. B, 58th Arty., C. A. C. A. E. F., 10 May '18—10 Aug. '19; C. O., 3d Bn., 53d Arty., 26 Oct. '18; in command of Prisoner of War Enclosure No. 3 (3150 German prisoners), Camp Montoir, St. Nazaire, France, Jan.—Aug. '19. St. Mihiel Offensive, Meuse-Argonne Prisoners.
- THOMPSON, H. F. (VI) Lt., U. S. N. R. F. Lt. (j. g.), 24 Nov. '17; Lt., 20 Sept. '18. U.S.S. Missouri, Jan. '18—Jan. '19.
- TILTON, C. E. (III) 1st Lt., Ord. Corps, 8 Oct. '17. In Supply Div., Military Information Sect., Ord. Dept., Washington, D. C. A. E. F., 22 May '18—30 Dec. '18; Courier, Adm. Div., Hq. Ord. Dept., Tours, traveling in France and England until 15 Aug. '18; Ammunition School, Jonchery; in charge First Army Ammunition and Artillery Park, Domgermain, 8 Sept.; Inst. and C. O., Ammunition School, Oct. '18; detailed to Army Postal Express Service, and ordered to Washington as a courier, 30 Nov. '18. Disch., 15 Jan. '19. St. Mihiel Offensive.
- TOWNSEND, J. M. (I) Capt., Engrs. Pvt., Engrs., 19 May '17; 1st Lt., 1 July; Capt., 15 Aug. '18. 4th Engrs.; 14th Engrs. A. E. F., 27 July '17—27 Apr. '19; served as company officer or company comdr., Co. F, 14th Engrs., with British Third Army, 12 Aug. '17—1 Aug. '18; regt. assigned American 1st Army, served as Corps Engrs. with 3d Corps, through Aisne-Marne Offensive. Cambrai Offensive and Defensive, Nov. '17; Somme Defensive, 21 Mch.—6 Apr. '18; defensive sector about Monchy-le-Preux, July; Aisne-Marne Offensive; St. Mihiel Offensive; Meuse-Argonne Offensive.
- TURNBULL, M. J. (II) 1st Lt., Engrs. Office of Director General, Military Rys., inspecting trench locomotives, 12 Sept. '18—27 June '19.
- WAITT, W. H. (VI) Capt., Ord. Corps. 1st Lt., 18 Dec. '17; Capt., 29 June '18. Ord. Officer, Bush Terminal, N. Y., inspecting the loading of ships with high explosives, spring and summer, '18.
- WARREN, VAN COURT (III) 1st Lt., Engrs. 2d Lt., Feb. '18; 1st Lt., 24 Feb. '19. 3d Engr. Off. Tr. Camp, Camp Lee, Va., 28 Dec. '17; 65th Engrs., Washington, D. C., in Feb. '18; transferred 105th Engrs.; Office of Director of Tank C., Washington, D. C., in Apr. '18. A. E. F., 28 May '18—17 Aug. '19; Aide to Gen. Ferguson, in Oct. '18. Office of Chief of Engrs., 2d Army.
- WEBB, C. C. (III) 2d Lt., A. S. A. Ft. Myer, Va., Dec. '17; Ground Off. Tr. Sch., Kelly Field, Texas, Dec. '17; transferred to M. I. T. where training was completed; received flying training and served as Engr. Officer in charge of shops, and Asst. Post Ex. Officer, Ellington Field, until July '19.
- WELLS, W. F. (VII) Capt., Sn. C. 1st Lt., Sn. C., 79th Div. in Dec. '17. A. E. F., 301st Water Tank Train; Water Laboratory, Tours, in Nov. '18.
- WENTWORTH, J. P. (XI) Capt., Sn. C. 1st Lt., Aug. '17; Capt., Mch. '18. Served until 17 Feb. '19.
- WHITNEY, J. T. (IV) Pvt., Engrs. Entered Service, 1st Engrs. Replacement Regt., Washington Barracks, D. C., 15 Sept. '18; transferred to Engr. Off. Tr. Sch., Camp Humphreys, Va., 8 Oct. '18. See Civilian Record.

TECHNOLOGY'S WAR RECORD

1911

- AARON, J. A. (VI) Corp., Ord. Corps. Enlisted, 11 Dec. '17; Pvt., 1st cl., 21 Sept. '18; Corp., 2 Nov. A. E. F., 5 Mch. '18—24 May '19; Co. 12, American Ord. Base Depot in France; Checker and Asst. Storekeeper handling ammunition, Advanced Ord. Depot No. 4, 28 Mch. '18. See Civilian Record.
- ALEXANDER, H. S. (I) Capt., A. S. A. 1st Lt., A. S. A., Aug. '17; Capt., 1 Aug. '18. A. E. F., 13 Oct. '17—20 Feb. '19; training in England and C. O., 92d Aero Sq., Oct. '17; service with British in France, 1 Feb. '18; in charge of training enlisted personnel in British Isles, under Personnel Officer, Office of Aviation Officer, London, 22 Feb.—Nov.
- ALTER, J. F. (IV) reported Inspector, Q. M. C.
- ANDERSON, R. E. (III) reported 2d Lt., F. A.
- ARMS, J. T. (IV) Ensign, U. S. N. R. F. Q. M. 2cl, U. S. N. R. F., 8 July '17; C. Q. M., Nov.; Ensign, 1 Mch. '18. U. S. N. R. F. Training Station, Newport, R. I., 10 Oct. '17; Naval Tr. Station, Norfolk, Va., Nov. '17; Off. Tr. Sch., Hampton Rds., Va., Dec. '17; Naval Examining Bd., Norfolk, Va., 1 Mch. '18; U. S. Destroyer Montgomery, 26 July '18; Navigation Officer, Sept.—8 Dec. '18.
- ATKINS, L. M. (XIII) Comdr. (T.), C. C., U. S. N. Entered Service, 23 Sept. '02; Comdr., (T.), 21 Dec. '18. Asst. Supt. of Cons., Fore River Shipbuilding Corp., Quincy, Mass., 1 Jan. '15. Bu. of Cons. and Repair, Washington, D. C., inspecting all types of vessels under construction, and working on designs involving modifications necessary to meet developments of war service, principally for destroyers, 15 Feb. '18.
- BABBITT, H. E. (XI) Capt., Engrs. Candidate, Off. Tr. Camp, 15 May '17; Capt., Engrs., 19 June. Inst., 2d Off. Tr. Camp, Ft. Sheridan, Ill., 29 Aug. '17. A. E. F., 25 Dec. '17—12 Dec. '18; Staff Work, Adv. Sect., S. O. S., 25 Dec. '17, constructed barracks, hospitals, gasolene stations, railheads, water supplies, and similar engineering structures in divisional training areas.
- BAGG, J. L. (V) Candidate, F. A. Off. Tr. Sch., 8 Aug. '18. 51st Tr. Btry., F. A., Off. Tr. Sch., Camp Taylor, Ky., 17 Oct.—2 Dec. '18.
- BAILEY, F. R. (I) reported 1st Lt., Engrs.
- BAKEWELL, D. C. (II) Capt., Ord. Corps. 1st Lt., Ord. Corps., 15 June '17; Capt., 28 June '18. A. E. F., 3 Oct.—24 Dec. '18. A. D. C. to Gen. C. L. H. Ruggles.
- BARKER, C. M. (VI) 2d Lt., A. S. Pvt., Sig. C., 27 Mch. '18; transferred A. S., June; 2d Lt., 18 July '18. College Training School, 27 Mch. '18; Wireless Telephone Expert, A. S. See Civilian Record.
- BARTON, D. C. (XII) Mr. Sig. Elec., Meteorological Sect., Sig. C. Pvt., Inf., 29 Oct. '17; Pvt. 1 cl., June '18; Corp., Sept.; Sgt., Nov.; Mr. Sig. Elec., Feb. '19. Attached Weather Bu., Burlington, Vt., 21 Dec. '17; transferred Meteorological Sect., Sig. C., 29 Jan. '18. A. E. F., 4 Mch. '18—7 June '19; Asst. Weather Forecaster, 1st and 2d Armies at Colombey-les-Belles, Aug.-Jan. '19, and Coblenz, Jan.-June '19.
- BATES, S. E. (I) reported Pvt., N. A.
- BESSE, E. E. (II) Capt. Ord. Corps. 1st Lt., Ord. R. C., 18 July '17; Capt., 8 Jan. '18. Watervliet Arsenal, N. Y., 22 Aug. '17; Ord. Dept., Washington, D. C., 4 Sept. '17; in charge of Engr. work on anti-aircraft gun carriages, 8 Jan. '18—1 Mch. '19; tested pilot carriages and experimented with recoil mechanisms at Sandy Hook, Aberdeen, and Saybrook Proving Grounds.
- BRAGG, C. S. (II) Capt., A. S., Engr. Div., Airplane Production. Director of Flying, McCook Field, Dayton, Ohio.
- BROOKS, A. W. (VI) reported Draftsman, 2d Bat., 3d Engrs.
- BROWN, H. C. (II) 2d Lt., C. A. C. Asst Engr., Mass. N. G., 26 Mch. '17; Engr., 18 June; Mr. Elec., 12 Mch. '18; 2d Lt., C. A. C. 27 Mch. Engr. in charge power plant Ft. Warren, Coast Defense of Boston, 25 July '17; 3d Off. Tr. Camp, Ft. Monroe, Jan. '18; Asst. Arty. Engr., Staff of Comdr., Coast Defense, 27 Mch.; 71st C. A. C. Ft. Warren, 22 May; Supply Officer, Hq. Co., 71st C. A. C., 10 July. A. E. F., 31 July '18—22 Feb. '19; Mechanical Officers' School, Angers; Mechanical Officer, in charge of Motor Transportation, 1st Bn.; in charge of convoys from Angers to Romorantin, Vernueil, and St. Nazaire with the M. T. C., 25 Dec.
- *BROWNLEE, M. B., JR. (III). See Roll of Honor (page 110).
- BURDETT, PAUL (XIII) 1st Lt., C. A. C. 71st Regt., C. A. C., Ft. Revere, Mass.; in Service Aug. '17—Nov. '18.
- BURTON, F. A. (IV) 2d Lt., Military Intelligence Div., General Staff. Commissioned, 29 Aug. '18. Intelligence duty as Asst. Military Attaché, The Hague, Holland, 29 Aug. '18—17 June '19. See Civilian Record.
- CALDWELL, P. L. (I) Capt., A. S. 1st Lt., A. S., 25 June '17; Capt., 28 Sept. '18. Asst. Dept. A. S. Officer, Hq., Northeastern Dept., Boston, Mass., 25 June '17; Acting Dept. A. S. Officer and C. O., 813th Aero Sq., 28 Sept.—13 Dec. '18.
- CHAMBERLAIN, O. V. (II) 2d Lt., Ord. Corps. Commissioned, 7 Jan. '18. Supply Div., Ord. Dept., 7 Jan. '18. A. E. F., 23 Sept. '18—10 Jan. '19; 5th Corps, 1st Army.
- CLARK, CAMERON (IV) C. C. M., U. S. N. R. F., Camouflage Sect. Entered Service, 15 May '18, and did experimental work on camouflage of navy planes at Anacostia Naval Air Station, D. C., June—Nov. '18.
- CLARK, O. S. (II) Pvt., Engrs. Pvt., Engrs., 28 Mch. '18; transferred to Engr. Off. Tr. Sch., 10 Sept. Co. C, 2d Engr. Tr. Regt., in charge of drawing room, Mechanical Construction School, Engr. Tr. Sch., Camp Humphreys, Va., 28 Mch. '18; Co. 7, Engr. Off. Tr. Sch., 10 Sept.
- CLAVELL, ANTONIO (V) Lt., Inf., 1 Feb. '18. Attached 373d Inf.

REGISTER OF MILITARY RECORDS

- COBURN, W. H. (I, XI) Capt., C. W. S., 1st Lt., Sn. C., 30 Jan. '18; Capt., C. W. S., 18 July. Gas Defense, Washington, D. C., Jan. '18; with B. F. Goodrich & Co., Akron, Ohio, producing rubber parts for gas masks; Asst. Chief, Inventory Sect., B. F. Goodrich & Co., making inventories for War Dept., Nov. '18—8 Feb. '19.
- COLEBROOK, M. W. (V) 1st Lt., C. W. S. Commissioned June '18. At Philadelphia, Pa., mfg. eye piece lenses for gas masks; at Columbus, Ohio, mfg. gas mask lenses, 1 Sept.; Gas Defense Plant, Astoria, N. Y., 11 Nov.—2 Dec. '18.
- CORNELL, S. H. (XIII) Pvt., C. A. C., 21 Oct. '18. With 5th Co. See Civilian Record.
- CORY, M. M. (I) reported in Aviation Sect., Sig. C.
- COVILL, F. W., U. S. N. Enlisted 1 May '18. Detailed, Intelligence and Cost Depts., U. S. N., and sent to factories doing work for Navy on basis of cost-plus, to discover means of reducing costs of mfg.
- CUSHING, A. T. (I) Corp Inf. Pvt., Inf., 2 Apr. '18; Corp., 1 May '18; reduced to Pvt. as result of transfer, 15 Sept. '18. Co. B, 315th M. G. Bn., A. E. F., 17 May '18—31 May '19; transferred to Bn. Hq. Returned to duty with Co., 20 Jan. '19; Inst. in mathematics, Battalion School, Feb.—May '19. Arras-Artois Sector; St. Mihiel Offensive; Meuse-Argonne Offensive (Verdun).
- CUSHING, R. W. (VI) Capt., Engr. Purchased Supplies, Engr. Depot, Washington Barracks, D. C., 17 Aug. '18—30 Oct. '19.
- DAVIS, H. C., JR. (VI) Lt.-Col. Ord. Corps. 2d Lt., C. A. C., 20 Dec. '11; transferred to Ord. Dept., June '15; 1st Lt., Sept. '16; Capt. '17; Maj. '18; Lt.-Col., '19. Chief Loading Sect., Ammunition Div., Ord. Dept., Washington, D. C., in charge of loading H. E. shells, drop bombs, and trench warfare projectiles.
- DAVIS, W. C., JR. (I) 2d Lt., Engr. Volunteer Ambulance Driver and Sgt., American Ambulance Hospital, Paris, May '16—Jan. '17. Corp., Inf., 22 Sept. '17; 2d Lt., Engrs., 18 May '18. A. E. F., May '18—Feb. '19. Artois Front; Somme Offensive with British; Meuse-Argonne Offensive. Severely wounded in action, Sommerance (Meuse-Argonne Offensive), 1 Nov. '18. (Page 252.)
- DEVLIN, J. J. (III) Capt., Engrs. 1st Lt., Engrs., 8 May '17; Capt., 8 May '18. 301st Engrs., Camp Devens, Mass., 8 May '17. A. E. F., 28 June '18—28 June '19; with 4th Corps Engrs. at St. Mihiel; Engr. Officer—2d Army, Meuse-Argonne Offensive; C. O., 465th Engrs., Nov. '18; C. O., 543d Engrs., Feb. '19. Post Utilities Officer, Army Supply Base, Norfolk, Va., July. St. Mihiel Offensive; Meuse-Argonne Offensive.
- DRAKE, WHITFORD (XIII) Comdr., C. C., U. S. N. Entered Service, 26 Sept. '02; Lt. Comdr., C. C., Apr. '17; Comdr., 23 Dec. '18. Shop Supt., and Plant Supt., Hull Div., Navy Yard, Puget Sound, Wash., until Mch. '19; then Supt. Constructor for Navy on Eagle Boat contract, Ford Motor Co., Detroit, Mich.
- EDWARDS, CHARLES, JR. (XIII) Capt., F. A. Entered Service 12 May '17. 2d Lt., F. A.; 1st Lt., 31 Dec. '17; Capt., 1 Aug. '18. A. E. F., May-Sept. '18 with 307th F. A. 46th F. A., Sept.—Dec. '18.
- FOSTER, W. D. (IV) 1st Lt., Engrs. Sgt., Engrs., Sept. '17; 2d Lt., Feb. '18; 1st Lt., Nov. '18. 40th Engrs. (Camouflage), American University, Washington, D. C. A. E. F., May—Dec. '18; Divisional Camouflage Officer, with 1st, 2d, 3d, 37th, 42d, 77th, 82d, and 91st Divisions, May-Nov.; Adj. Hq. of Educational Comm., Fine Arts Dept., Bellevue near Paris. St. Mihiel Offensive; Meuse-Argonne Offensive.
- FRANCIS, R. D. (III) Sgt., Engrs. Co. E, 101st Engrs. A. E. F., before Oct. '18.
- FRANCIS, S. A. (IV) 2d Lt., F. A. Entered Service, 5 Sept. '17; Pvt., Inf., 5 Sept. '17; Corp., 7 Nov.; 2d Lt., F. A., 31 Aug. '18. Co. C, 339th Inf., Camp Custer, Mich.; 4th Off. Tr. Sch., 15 May '18; Btry. 16, F. A. Cent. Off. Tr. Sch., Camp Taylor, Ky., July '18; 82d F. A., Ft. Bliss, Texas, Sept.; School of Fire, Ft. Sill, Okla., 9th F. A., Ft. Sill, Okla., Mch.—Apr. '19. See Civilian Record.
- FRENCH, J. N. (IV) 2d Lt., A. S. A. E. F., before Dec. '18.
- FROST, R. W. (I) Norton-Harjes Ambulance Unit, June '17. Electrical Engr. for Director General of Transportation, A. E. F.; transferred to service of General Purchasing Agent; Electrical Engr., Technical Bd., A. E. F. In France, June '17—1 Jan. '19.
- FRYER, HERBERT (VI) Capt., Q. M. Div., O. R. C. Not assigned active service. See Civilian Record.
- FULLER, J. C. (II) 1st Lt., C. W. S. Entered Service, 30 Sept. '18; Hq., Chemical mfg. and Development Sect., Gas Defense Div., New York City, 30 Sept. '18—15 Feb. '19.
- GAILLARD, D. ST. P. (VI) Maj., Ord. Corps. 1st Lt., Ord. Corps. 2 Aug. '17; Capt., 8 Jan. '18; Maj., 12 July '19. Nitrate Div., Office of Chief of Ord., Washington, D. C., on special site investigations; Chief of Purchase Branch; Technical Asst. to Chief of Div.; Executive and General Asst. to Chief of Div. (Page 305.)
- GEORGE, G. C. (I) 1st Lt., Engrs. Co. G, 1st Bn. Repl. Troops, Washington Barracks, Washington, D. C., Dec. '17; Repl. Troops, Camp Forrest, Ga., 20 July '18; Co. B, 209th Engrs., 9th Div., Camp Sheridan, Ala., 1 Sept.; Camp Upton, L. I., 24 Jan. '19.
- GILCREEST, O. J. (VI) 2d Lt., U. S. Marine Aviation Force. Commissioned, 18 June '18. A. E. F., 30 June—22 Dec. '18; Officer in Charge of Transportation, 1st Marine Aviation Force, organizing motor convoys, unloading trucks, and touring cars from ships at Brest and Pauillac, France.
- GLAZIER, L. G. (VII) Capt., Ord. Corps. Commissioned, 3 Oct. '18. Chief of Labor Branch, Loading and Explosives Sect., Production Div., Ord. Dept., Washington, D. C., Oct.—20 Dec. '18; transferred to Boston, as member of Staff of Boston Dist. Claims Bd., 20 Dec. '18—31 Oct. '19. See Civilian Record.
- GOTO, KANEZO (II) Capt., Engr. Corps, Imperial Japanese Navy. Lt. Comdr., '14; Comdr., Dec. '15; Capt., Dec. '19. Engr., at Sasebo Navy Yard, in connection with repair work on warships which were engaged at Tsingtau, '14; Member, Bu. of Steam Engr., Nov. '15; Chief Engr., 1st Class Battleship, July '16; Chief Inst.

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- and Comdr. of Engr. Midshipmen of Imperial Naval Engr. College, July '17; Sq. Engr., Destroyer Sq., Jan. '19; Member, Design Dept., Imperial Japanese Navy, Dec. '19.
- GOULD, R. H. (XI) 2d Lt., A. S. A. Pvt. 1 cl., Flying Cadet, A. S., 10 Sept. '17; 2d Lt., A. S. A., 24 Mch. '18. Cornell University Ground School, 10 Sept. '17; Love Field, Texas, 1 Dec. '17; Camp Dix, Texas, and Camp Merritt, N. J., Apr. '18; Payne Field, West Point, Miss., June. A. E. F., 27 Sept. '18—27 Apr. '19; training for Pursuit Pilot, Issoudun; A. S. Casual Co. 1, 7 Dec. '18.
- GRANDGENT, LOUIS (IV) Maj., Inf. 1st Lt., Inf., 14 May '17; Capt., 15 Aug.; Maj., 1 Oct. '18. Co. Comdr., 101st Inf. A. E. F., 9 Sept. '17—2 July '19; Co. Comdr., 30th Inf.; Co. Comdr. and Tactical Training Officer, Army Candidates School; Historical Sect., General Staff, G. H. Q. Champagne-Marne Defensive; Aisne-Marne Offensive.
- GRAVELY, J. S. (V) Maj., Ord. Corps. Capt., Ord. R. C., 8 Aug. '17; Maj., Ord. Dept., N. A., 13 Jan. '18. Resigned 11 May '18 to return as Head of Laboratory Div., Winchester Repeating Arms Co., New Haven, Conn. See Civilian Record.
- GREENAN, J. O. (III) 2d Lt., Engrs. Pvt., Engrs., 10 Apr. '18; Corps., 10 June; 2d Lt., 9 July. Co. B, Engr. Off. Tr. Camp, Camp Lee, Va.; Hq. Co., 27th Engrs., Camp Leach, Washington, D. C. A. E. F., 15 Sept. '18—5 Mch. '19; with 27th Engrs.; Member, Mines Sect., American Comm. to Negotiate Peace examining and reporting on damage to iron mines of Briey-Longwy region 20 Jan. '19; returned to 27th Engrs. 27 Feb. '19. Meuse-Argonne Offensive.
- HALL, E. R. (II) Candidate, F. A. Cent. Off. Tr. Sch., 14 Oct.—3 Dec. '18.
- HALL, H. W. (IV) Capt., Inf. 1st Lt., 27 Aug. '17; Capt., 10 Aug. '18. Off. Tr. Camp, '17; Co. D, 343d Inf., Camp Grant, Ill.; C. O., Co. A, 88th Inf., Camp Grant, 10 Aug. '18.
- HANSON, R. T. (XIII) Comdr., C. C., U. S. N. Graduated from U. S. Military Academy, '06; Comdr., U. S. N., '16. Asst. to Superintending Constructor, New York Shipbuilding Corp., Camden, N. J., Oct. '16—Mch. '19.
- HARRIGAN, L. J. (XI) M. M. 1 cl., U. S. N. R. F. A. E. F., U. S. S. Ohio, Nov. '17; U. S. S. Indiana, '18.
- HARRINGTON, C. H. (I) Sgt., 301 Engrs., A. E. F.
- HARRINGTON, F. C. (I) Capt., Q. M. C., 13 Feb. '18. Asst. to Cons. Q. M., Raritan Arsenal, Metuchen, N. J., 10 Dec. '17—June '19.
- HARRINGTON, J. F. (VI) 1st Sgt., F. A. Entered Service 6 Oct. '17; disqualified on account of heart, 13 Oct.; Pvt., Btry. A. F. A. Off. Tr. Sch., Camp McClellan, Ala., 5 July '18; 15th Tr. Btry., Cent. Off. Tr. Sch., Camp Taylor, Ky., 6 Sept.—27 Nov.
- HART, J. P. (VI) Lt., Comdr. (T.), U. S. N. Ensign, U. S. N., (Retired), 7 Apr. '17; Lt. (j. g.), 1 July '18; Lt. Comdr., (T), 21 Sept. Recalled to active service, 7 Apr. '17; Recruiting Officer, Portland, Ore.; in charge, Navy Electrical School, Navy Yard, Brooklyn, N. Y., 12 July; school transferred to Naval Operating Base, Hampton Roads, Va., 28 May '18; relieved from active duty, 1 Nov. '19.
- HERLIHY, J. A. (II) Capt., A. S. 1st Lt., 15 Aug. '17; Capt., 1 Aug. '18 Kelly Field, Texas, 7 Sept. '17; C. O., 109th (later 803d), Aero Sq. A. E. F., 10 Dec. '17—27 Apr. '19; assisted in construction of A. S. Production Center No. 2, Romorantin; transferred to Transportation Div., A. S., 23 Mch. '18; Asst. Ex. Officer later in charge of Div., Romorantin, maintaining a stock of motor vehicles, trailers, parts and supplies to equip A. S. Units; transferred A. S. Casual Co. No. 3, 27 Jan. '19.
- *HERRICK, W. F. (II). See Roll of Honor (page 103).
- HODGMAN, W. K., JR. (II) 2d Lt., Ord. Corps. A. E. F., before Dec. '17. C. O., Detachment American Ord. Base Dep.; Advance Ord. Depot No. 1.
- HUGELMAN, J. R. (I) reported Engr., U. S. N. R. F.
- JENKINS, D. J. (II) Mr. Engr., Engrs. D. Co., 27th Engrs. (Mining), Camp Leach, Washington, D. C., A. E. F., Co. C, 27th Engrs.
- JEWETT, F. C. (I) Q. M., U. S. N. R. F. N. N. V., later U. S. N. R. F. 10th Dock Div., Marblehead, Mass. Nov. '17; U. S. S. Nebraska, Dec. '18.
- JOHNSON, C. R. (X) Maj., C. W. S. Capt., Gas Defense Sect., Medical Dept., 9 Jan. '18; Maj., C. W. S. In charge of rubber parts for gas masks, Gas Defense Sect., Jan.—July '18; in charge of development of new type of gas mask known as the A. T., Apr. '18; in charge of Long Island Laboratories, Gas Defense Div., C. W. S., July. A. E. F., 13 Oct.—20 Dec. '18; attended Interallied Gas Conference, Paris; inspected chemical warfare activities in France and England. See Civilian Record.
- JUDD, M. H. (VI) Ensign, U. S. N. R. F. (A.). C. Q. M. (A.) U. S. N. R. F., 16 July '17; Ensign, 20 Dec. '18. Ground School, M. I. T.; Stationed at Buffalo, N. Y., Elizabeth, N. J., and Norfolk, Va. Fell about a thousand feet in the HS2L 1463 off Sandy Hook.
- KENNEY, G. C. (I) Capt., A. S. 1st Lt., 5 Nov. '17; Capt., 18 Mch. '19. School of Military Aeronautics, M. I. T., 2 June—27 July '17; Flying School, Mineola, L. I., 28 July—14 Nov. '17. A. E. F., 1 Dec. '17—11 June '19; advanced flying training, Issoudun, 15 Dec. '17—15 Feb. '18; 91st Aero Sq., 22 Feb. '18; in hospital 23 Mch.—15 May; at the Front 24 May. Toul Sector; St. Mihiel Offensive; Meuse-Argonne Offensive; Army of Occupation. Army Citation for bringing down an enemy plane, 15 Sept. '18; Distinguished Service Cross for bringing down a second enemy plane, 9 Oct. '18. (Page 134.)
- KENWAY, EDWARD (XI) 1st Lt., A. S. A. Commissioned 12 Sept. '17. 64th Aero Sq., 17 Sept. '17; C. O., 63d Aero Sq., 6 Nov. '17; C. O., 83d Aero Sq., 17 Nov.; C. O., Photo Detachment No. 1, 7 Dec. '17. A. E. F., 18 Dec. '17—7 Mch. '19; C. O., 801st Aero Sq., 19 Feb. '18; Adj., Fields No. 1 and No. 2, at 3d Aviation Instruction Center, Issoudun.

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- KERR, C. P. (II) Capt., A. S. 1st Lt., A. S., 31 Oct. '17; Capt., 15 Sept. '18. A. E. F., 12 Nov. '17—9 Feb. '19; Asst. to Chief of Engine Div., Technical Sect.; Asst. to Officer in Charge of Technical Sect., Feb. '18; Asst. to Director of Technical Sect., Aug., studying and testing engines, planes, and accessory apparatus, and advising Chief of A. S., A. E. F. in technical matters, Aug. '18. See Civilian Record.
- KILLION, T. S. (III) 2d Lt., Engrs. 321st Labor Bn., Camp Grant, Ill. A. E. F., '18—Apr. '19; Co. D, 329th Labor Bn., Railroad Office, Bourmont; Message Center, 2d Div.; Asst. Operations Sect., General Staff, 2d Div., Nov.
- *KIMBALL, S. P. (VI). See Roll of Honor (page 118).
- KINNEY, M. C. (IV) 1st Lt., Royal Air Force, (British). Commissioned 1 Aug. '17. Flying Officer No. 3 Sq. B. E. F., 21 Dec. '17—5 Mch. '19. British Third Army from German Drive, 21 Mch. to British Offensive, south of the Somme, 8 Aug. '18. Wounded while flying over the German lines, 16 Aug. '18. (Page 167.)
- LATHROPE, T. R. (VII) reported in Sn. C.
- LAWTON, S. H. (V) Capt., C. W. S. Entered Service, Jan. '18. A. E. F., before Dec. '18.
- LEARY, A. F. (XI) Pvt., C. A. C. Enlisted 22 Oct. '18. 2d Co., C. A. C., Ft. Banks, 22 Oct. '18; 24th Co., Ft. Heath, Mass., 19 Nov.; 15 Co., Ft. Andrews, Mass., 25 Nov.—14 Dec. '18.
- LETTON, H. P. (XI) Capt., Engrs. Commissioned 21 Sept. '17. Co. C, 11th Engrs., Camp Bowie, Texas. A. E. F., 5 Feb. '18—6 Mch. '19; Sanitary Officer on Staff of Water Supply Officer, Office of Chief Engr., 1st Army, in charge of sanitary personnel; 26th Engrs. Meuse-Argonne Offensive.
- LORD, H. S. (II) Capt., General Staff. 1st Lt., Engrs., 7 May '17; Capt., 28 May '18; transferred to General Staff, 15 Jan. '19. 1st Off. Tr. Camp, Plattsburg, N. Y.; Engr. Depot, Washington, D. C., 28 July '17; Requirements Div., May '18; Office of Chief of Engrs., Sept.; General Staff, in charge of machine tools sales, Jan. '19; Consulting Mech. Engr., on work of standardizing the equipment of the Army.
- LORD, R. H. (VI) Capt., Ord. Corps. Lt., Ord. Corps, Nov. '17; Capt., July '18. Sandy Hook Proving Grounds, N. J., May '18. A. E. F., July '18; Office of Chief Ord. Officer, Aug. '18.
- McALLEN, J. L. (III) 1st Lt., Engrs. Commissioned 19 June '17. Engr. Off. Tr. Camp, Camp Lee, Va., 28 Dec. '17; 602d Engrs., Camp Humphreys, Va., 5 Mch. '18; Co. B, 602d Engrs., Camp Devens, Mass. A. E. F., 8 July '18—26 June '19; training area near Langres. Engrs. for 5th Army Corps, St. Mihiel, 10-16 Sept.; Meuse-Argonne Offensive, 26 Sept.—11 Nov. (Avocourt); transferred to 7th Army Corps; Army of Occupation.
- McCUNE, W. R. (II) 1st Lt., Ord. Corps. Commissioned 22 Nov. '17. Trench Warfare Div., Ord. Dept., Washington, Nov. '17—Mch. '19.
- MACKENZIE, J. D. (III) Lt., Inf. (Canadian). Pvt., Inf., 28 Apr. '16; Sgt., 1 May '16; Lt., 26 June '16. 185 Inf. Bn., Cape Breton Highlanders, 28 Apr. '16. C. E. F., 13 Oct. '16—18 Aug. '19. Fampoux; Amiens; Drocourt-Queant Line. Wounded by shrapnel, 2 Sept. '18. Military Cross (British). (Pages 146 and 166.)
- MACK, P. W. (I) Capt., Engrs., Bu. of Public Works, Manila, P. I. before Sept. '18.
- MAGRATH, C. B. (II) Capt., F. A. (Canadian). Commissioned, 29 Dec. '14. 7th and 4th Brig. Canadian F. A. C. E. F., July '15—1 Mch. '18. Wounded at Passchendaele, Belgium 22 Oct. '17. Invalided out of service.
- MANLEY, H. L. (I) Capt., Ord. Corps. Pvt., Off. Tr. Camp, 12 May '17; 1st Lt., Ord. Corps, 15 Aug.; Capt., 23 Feb. '19. 1st Off. Tr. Camp, Plattsburg, N. Y., 12 May '17; Machine Gun School, Springfield, Mass., 25 June; 126th Ord. Depot Co., 29 Aug.; Div. M. G. and Small Arms Inspector and Repair Officer, 110th Mobile Ord. Repair Shop, 35th Div., Mch. '18. A. E. F., 19 May '18—1 Aug. '19. 1st Army M. G. Gun and Small Arms Armament Officer, 10 Nov.; Acting Chief Ord. Officer, 1st Army, 5 Apr. '19; M. G. Repair Officer, Ord. Base Repair Shops, 26 May '19. Sectors in Vosges Mountains; St. Mihiel Offensive; Meuse-Argonne Offensive.
- MERRILL, C. H. S. (I) 2d Lt., Engrs. Mr. Engr., (sr. gr.), Engrs., 3 Apr. '18; 2d Lt., Transportation Corps, 14 Nov. '18. 39th Engrs., 3 Apr. '18. A. E. F., 18 June '18—27 June '19. See Civilian Record.
- MERRILL, L. M. (V) Pvt., C. W. S. Corp., Inf., Ohio National Guard, 9 Apr. '17; reduced to Pvt. on voluntary transfer to C. W. S., June '18. Co. C, 147th Inf., Nov. '17; Co. D, Jan. '18; Sn. Sqd. A, 112th Sn. Train, 37th Div., June; Co. K, 3d Bn., C. W. S., Edgewood, Md., 15 Aug.
- *MIETZ, A. C. (III). See Roll of Honor (page 112).
- MOORE, F. A. (II) 1st Lt., A. S. A. 2d Lt., F. A., 24 Aug. '17; transferred to A. S. A., Dec.; 1st Lt., A. S. R. C., 22 Dec. '18. 2d Off. Tr. Camp, Leon Springs, Texas, 24 Aug. '17; 335th Sq., 57 Recruit Line, Waco, Texas; 4th Prov. Regt., Charlotte, N. C.; 880th Sq., Montgomery, Ala.
- MORRISON, I. F. (I) 1st Lt., Ord. Corps. Pvt., Off. Tr. Camp, 25 Aug. '17; 1st Lt., Ord. Corps, 23 Nov. 2d Off. Tr. Camp, Plattsburg, N. Y., 25 Aug. '17; Ord. Dept., Washington, D. C., Nov. '17; Machine Gun School, Springfield Armory, Mass.; C. O. 4th Mobile Ord. Repair Shop, 4th Div. A. E. F., 10 May—17 Dec. '18; attached to Div. Hq. Staff, 18 July '18; Div. M. G., Ord. Officer and Acting Bn. Adj., 12th M. G. Bn. Ainslie-Marne Offensive. Gassed, 14 Aug. and spent five months in hospitals.
- MORSE, R. E. (VI) 2d Lt., Sig. C. Pvt., Sig. C., 8 Nov. '17; Lt., 26 Aug. '18. Co. A, 321st Field Sig. Bn., Camp Upton, N. Y.; Supply Officer, 209th Field Sig. Bn.
- NEALEY, J. B. (I) 2d Lt., F. A. Pvt., Inf., Sept. '17; Sgt., F. A.; 2d Lt., 17 Aug. '18. With Co. K and Co. D, 3d Bn., 364th Regt., Inf.; Co. B, 316th Military Police; Btry. A, 346th Regt., 166th F. A. Brig., 91st Div.

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- C. O., Btry. D, 2d Bn., 1st Provisional Brig., 10 Sept. '18—Feb. '19. Stationed at Presidio, San Francisco, Calif.; Camp Lewis, Wash.; Camp Taylor, Ky., Camp Jackson, S. C. With Y. M. C. A. Hq. Staff, in charge of supplies, North Russian Expeditionary Forces, Archangel Dist., Dvina Front, May-Oct '19. (Page 283.)
- OFENSTEIN, C. L. (I) reported, Experimental Aeronautical Engr., U. S. N.
- PARKER, T. B. (I) Capt., Engrs. 1st Lt., Engr. R. C., 4 Oct. '17; Capt., Engrs., 26 Feb. '19. Engr. Off. Tr. Camp, Camp Lee, Va., 5 Jan. '18; Co. D, 26th Engrs., Camp Dix, N. J., 9 Feb. A. E. F., 30 June '18—3 Mch. '19; 26th Engrs., with Army Water Supply Service; C. O., Co. D, 26th Engrs., and Dist. Water Supply Officer, 3d Corps Area, 18 Oct.; directed work of Co. M, 59th Pioneer Inf. and detachments from Sn. C. and Water Tank Train. Baccarat Sector; Vesle Sector; Meuse-Argonne Offensive.
- PATRICK, L. A. (IV) Sgt., Inf. Mass. State Cav., 2 Apr. '12; mustered into Federal Service, 5 Aug. '17. A. E. F., 20 Sept. '17—14 Feb. '19. Co. A, 102d M. G. Bn., 26th Div.
- PEASE, R. S. (V) Corp., C. W. S. Pvt., Sn. C., 27 Mch. '18. Corp., C. W. S., 19 Feb. '19. Long Island Laboratories, Gas Defense Service, Sn. C., Long Island City, N. Y.
- PERRIN, L. W. (II) Capt., Inf., In Service Nov. '17. With 301st Inf., Camp Devens, Mass. and A. E. F.
- POWELL, O. D. (I, XI) 2d Lt., F. A. Pvt., F. A., 30 Sept.; Corp., 4 Jan. '18; Sgt., 11 Feb.; Instrument Sgt. 11 Mch. '18; 2d Lt., 27 Mch. '19. 309th F. A. (Hv.), Camp Dix. N. J., 30 Sept. '17. A. E. F., 8 May '18—10 May '19; with Advance Detachment of 78th Div.; trained at Camp Valdahon and Meucou; Saumur Arty. School, 30 Sept. '18. Toul Sector, 23 Aug. '18; St. Mihiel Offensive, 12—15 Sept.; Toul Sector, 16—23 Sept. See Civilian Record.
- PRAY, I. R. (XII) 1st Lt., Intelligence Police. Pvt., Maine Hv. F. A., 25 Aug. '17; 1st Lt., Intelligence Police, Sept. '18. A. E. F., 1 Mch. '18—1 Sept. '19; 1st Maine Hv. F. A., 26th Div.; Hq. Regt., 1st Army; Intelligence Police. Served with 1st Army Hq. Regt. attached to 1st, 2d, 3d, and 7th Corps of 3d Army and 1st, 3d and 5th French Armies. In all American major operations and three major operations with the French. Gassed, 18 July and 19 Aug. '18.
- PRENTISS, N. N. (III) Pvt. 1 cl., A. S., 8 June—15 Dec. '18.
- RANGER, R. H. (VIII) Capt., Sig. C. Student Officer, May '17; 2d Lt., F. A., Aug.; transferred to Sig. C. June '18; 1st Lt., July; Capt., Oct. A. E. F., Aug. '17—Aug. '19; Inst., 1st Corps, Sig. School; Inst., in charge Military Signalling Dept., French Arty. School, Saumur. St. Mihiel Sector; British Sector, Arras-Bapaume.
- RHOADES, W. G. (VI) 2d Lt., Inf. 63d Inf., Presidio, San Francisco, Calif., Mch. '18.
- RICHARDSON, WEBSTER (I) Y. 2 cl., U. S. N. R. F. Sea. 2 cl., U. S. N. R. F., 5 Dec. '17; Y. 2 cl. Off. Tr. Sch. for six months; not commissioned because physically unfit for active duty; in charge of Enrolling Office, San Pedro, Calif., 12 Jan. '18; Office of Cost Inspector, U. S. N., Union Plant, Bethlehem Steel Corp., San Francisco, Calif., 10 Dec. '18—12 May '19.
- RICHMOND, C. G. (I) 1st Lt., Engrs. Pvt., Engr. Off. Tr. Camp, 28 Dec. '17; 1st Lt., Engrs., 6 Mch. '18. Engr. Off. Tr. Camp, Camp Lee, Va., 28 Dec. '17; 602d Engrs., Camp Humphreys, Va., and Camp Devens, Mass., 7 Mch. '18; 605th Engrs., Camp Forrest, Ga., 27 June. A. E. F., 30 Sept., '18—18 June '19; with 8th Army Corps.
- *RIDEOUT, PERCY (I). See Roll of Honor (pages 98, 136 and 189).
- ROONEY, A. H. (VI) 2d Lt., Engrs. Pvt., Engrs., 19 Sept. '17; Sgt., 17 Mch. '18; 1st Sgt., 18 Mch.; 2d Lt., 16 May. A. E. F., 25 Sept. '18—18 Jan. '19, with 56th Engrs.
- RUSSELL, FOSTER (II) 2d Lt., A. S. A. Pvt., 1st cl., Sig. C., 23 Dec. '17; 2d Lt., Reserve Military Aviator, A. S. A., 11 July '18. Aviation Ground School, Berkeley, Calif., 19 Jan. '18; Aviation Concentration Camp, Camp Dick, Dallas, Texas, 30 Mch.; Carlstrom Field, Arcadia, Fla., for flying training, 2 May; Dorr Field, Fla., May; Camp Dick, Texas, 23 July; A. S. Armorer's School, Wilbur Wright Field, Ohio, for course on machine guns, 6 Aug.; A. S. Flying Field, Payne Field, West Point, Miss., Sept. '18; Disch., Port of Embarkation, Hoboken, N. J., 5 Dec. '18.
- RUSSELL, FRANK, JR. (II) 1st Lt., Ord. Corps. Inspector of Small Arms Ammunition.
- SAVAGE, E. C. (II) Pvt., Tank C., 15 July '18. 310th Center, 15 July—10 Dec. '18. See Civilian Record.
- SAWYER, R. E. (XII) Capt., Q. M. R. C. 1st Lt., Inf. O. R. C., 6 Nov. '16; transferred to Q. M. C., 15 Aug. '17; Capt., Q. M. R. C., 21 Apr. '19. Obtained supplies for Cons. Div., Camp Devens, Mass.; Travelling Inst. and Inspector of Methods of Supply and Accounting until 21 Apr. '19.
- SCHMIDT, S. M. (VII) Sanitarian, Jewish Medical Unit, Amer. Red Cross, Joffa, Palestine, Nov. '18.
- SCRIBNER, S. H. (I) Sgt. 1 cl., Engrs. Sgt., 30 June '17; Sgt. 1 cl., 8 July '18. A. E. F., 27 July '17—27 Apr. '19; Co. A, 14th Engrs. (Lt. Ry.); operated and maintained light railways on British Front near Arras, 21 Aug. '17—20 May '18; constructed standard gauge yard at Calais; engaged in engr. work around Chéry-Chatreuve and Fismet and on American light railways; Center Shops, Apainville. Somme Defensive, Mch.—Apr. '18; Aisne-Marne Offensive. Aug.
- SEATON, R. A. (II) Capt., Ord. Corps. Commissioned, 15 Jan. '18. Engr. Div., Arty. Ammunition Sect., Ord. Dept., Washington, D. C.; approved designs of fuses, boosters, cartridge cases, shells, shrapnel and other ammunition components; prepared copy for handbook of instruction on use of ammunition; secured and acted as repository for confidential information regarding ammunition of allies and enemies.

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- SHENSTONE, O. H. (I)** 2d Lt., Royal Air Force (British). Commissioned, Dec. '17. Off. Tr. Camp of Canadian E. F., Toronto, Canada, Sept. '17; Technical Branch, Royal Air Force, C. E. F., England, Jan. '18—Feb. '19; Technical Branch No. 2, Sheffield, England.
- SMITH, W. L. (IV)** 1st Lt., C. A. C. A. E. F., before June '18; Hq. Co., 55th Arty.
- SNYDER, H. R. (IV)** Lt. Comdr., Pay Corps, U. S. N. Ensign, U. S. N., '10; Lt. (j. g.), '13; Lt., '16; Lt. Comdr., '18. On U.S.S. Tacoma, guarding U. S. interests in the Gulf of Mexico and Caribbean Sea; put U.S.S. Grosser Kurfirst (later the U.S.S. Aeolus) in commission as a troop carrier; Commissary Officer, Naval Academy, Annapolis, Md.; Supply Officer, U.S.S. Troy in transport service.
- SOULE, H. G. (II)** 2d Lt., Inf. 8th Co., Plattsburg, N. Y., Oct. '17; Hq., Cadet Wing, Kelly Field No. 2, Texas, Apr. '18.
- SPALDING, S. P. (III)** Lt.-Col., Ord. Corps. Maj., Ord. Corps, Apr. '18; Lt.-Col., Mch. '19. A. E. F., Ord. Depot, Tours. In Armenia, Dec. '19.
- STAMPER, W. Y., JR. (I)** Capt., Engrs. 2d Lt., Engrs., O. R. C., 12 Apr. '17; 1st Lt., 11 Aug.; Capt., Engrs., 1 July '18. 307th Engrs., Camp Gordon, Ga., 15 Aug. '17. A. E. F., Apr.—Sept. '18. St. Mihiel Offensive.
- STRONG, C. R. (IV)** 1st Sgt., A. S. Pvt., A. S., 17 May '18; 1st Sgt., 14 June. 1st Provisional Wing, 16th Aero Cons. Co., A. S., Camp Sevier, S. C., May '18; Mitchell Field, L. I., N. Y., June; Chapman Field, L. I., N. Y. A. E. F., England, Aug. '18—Apr. '19; constructed hospitals, Winchester; constructed complete airplane assembling plant, airdromes, and aviation field, Tangmere, Sussex.
- SWEETSER, H. A., Pvt., Inf.** Ft. Leavenworth, Kan., 15 Apr. '17; Off. Tr. Camp, Lehigh University; 24th Co., 5th Bn., Cent. Off. Tr. Camp, Camp Lee, Va.
- THOMPSON, M. R. (XIV)** Sgt., C. W. S. Pvt., C. W. S., 8 June '18; Sgt., 8 June '18. 1st Bn., Research Div., American University, Washington, D. C., 8 June—16 Dec. '18; Acting Cons. Foreman of a hydrogen sulphide plant, later Shift Foreman during operation of a butyl-mercaptan plant, utilizing hydrogen sulphide.
- UNDERHILL, A. W., JR. (VI)** 1st Lt., Engrs. 2d Lt., Engrs., 28 Dec. '17; 1st Lt., 14 June '18. Engr. Off. Tr. Camp, Camp Lee, Va., 28 Dec. '17; 1st Repl. Regt. Engrs., 8 Feb. '18. A. E. F., 1 Sept. '18—19 June '19; Sept. Automatic Repl. Draft of Washington Barracks (Engrs.), Camp Knotty Ash, England, 7 Oct. '18; held there for cons.; C. O., Co. No. 1, Washington Barracks Sept. Automatic Repl. Draft (Engrs.), 24 Feb. '19; in France, 1-10 May '19.
- VAN HOVENBERG, H. W. (XI)** Passed Asst. Surgeon, U. S. Public Health Service. Sn. Engr. (1st Lt.), U. S. Public Health Service, 19 Feb. '18; Assoc. Sn. Engr. with rank of Passed Asst. Surgeon (Capt.), 25 Feb. '19. Service at large in U. S., and in charge of malarial protection of soldiers and sailors at Naval Operating Base, and Army Supply Base, Norfolk, Va., Apr.—Sept. '18.
- VINING, R. E. (III)** 1st Lt., Engrs. Corp., Engrs., 21 Sept. '17; 2d Lt., 29 Mch. '18; 1st Lt., 1 Nov., Co. D. 303d Engrs., Camp Dix, N. J., 21 Sept. '17. A. E. F., 28 May '18—28 July '19; Co. F., 7th Engrs., 5th Div., 18 Sept. St. Mihiel Offensive 12-16 Sept. '18; Meuse-Argonne Offensive, 14 Oct.—11 Nov.; Army of Occupation, 28 Dec.—8 July '19. Wounded, 4 Nov. '18.
- WADE, N. S. (II)** Ensign, U. S. N. R. F., Sept. '18. See Civilian Record.
- WALKER, R. T. (IV)** 2d Lt., Engrs. Pvt., Engrs., 22 Sept. '17; Corp.; Sgt.; Sut. 1 cl.; Mr. Engr. (sr. gr.); 2d Lt., 4 Oct. '18. Camouflage Sect., 40th Engrs. A. E. F., 4 Jan. '18—6 Jan. '19; In action with 2d, 4th, 28th, 32d, and 72d Divisions; in charge of camouflage for 4th and 28th Divisions. Aisne Defensive and Aisne-Marne Offensive (Château-Thierry). June and July '18; Veste Sector; Meuse-Argonne Offensive (Verdun).
- WARNER, W. W. (I)** Pvt., C. A. C. Entered Service, 25 July '18. 5th Co., C. A. C., Ft. Wright, Long Island Sound, N. Y., 25 July '18; Candidate, Co. B and Co. F, C. A. C., Off. Tr. Sch., Ft. Monroe, Va., Sept. See Civilian Record.
- WATTS, LAURENCE (I)** Maj., C. A. C. 1st Lt., C. A. C., Nov. '17; Capt., '18; Maj., '19. Ft. Monroe, Va., Mch. '18; Camp Eustis, Va., Mch. '19.
- WEATHERWAX, L. A. (IV)** Pvt., Engrs. Co. I, Engr. Off. Tr. Sch., Camp Humphreys, Va.
- WEEKS, L. B. (VI)** Capt., C. A. C. U. S. Army Mine Planter. A. E. F., in Dec. '18.
- WELLS, R. B. (II)** Sgt., Marine Corps. A. E. F., in '17 and '18; 17th Co., 5th Marines, 2d Div. U. S. Naval Hospital, Chelsea, Mass., Mch. '19; Hospital in Washington, Apr. '19. Aisne Defensive (Château-Thierry); Aisne-Marne Offensive; Champaign Offensive; Meuse-Argonne Offensive. Shell shocked. (Page 174.)
- WELLS, R. D. (II, VI)** Capt., Ord. Corps. 1st Lt., Ord. R. C., 20 Aug. '17; Capt., 29 June '18; Capt., O. R. C., Feb. '19. In charge of inspection of trench helmets, periscopes, and instruments; transferred to inspection of fire control instruments for artillery.
- WHEELER, T. L. (X)** Maj., C. W. S. Capt., Gas Defense Div., C. W. S., 1 July '18; Maj., 1 Nov. '18. In charge Technical Development Dept., Chemical Manufacturing and Development Sect., Gas Defense Div., C. W. S., developing mfg. of charcoal and soda lime for gas masks.
- WHITCOMB, E. J. (X)** Capt., Ord. Corps. Pvt., Off. Tr. Camp, 25 Aug. '17; 1st Lt., Ord. Corps., 27 Nov.; Capt., 9 Aug. '19. Off. Tr. Camp, Plattsburg, N. Y., 25 Aug. '17; Raritan Arsenal, N. J., 27 Nov.; Liberty Loan Officer, Apr. '18; Personnel Adj., Raritan Arsenal, 1 July '18—29 Aug. '19.
- WILLIAMS, C. S., JR. (V)** reported Capt., Inf.
- WILSON, I. W. (XIV)** Maj., C. W. S. 1st Lt., Gas Defense Service, Sn. C., 26 Sept. '17; Capt., 19 Mch. '18; Maj., C. W. S., 13 July. Inspected gas defense materials, Astoria, N. Y. 26 Sept. '17; C. O. Hero Detach-

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- ment, Philadelphia, Pa., 8 Feb. '18, mfg. gas masks; C. O., Astoria Detachment, Astoria, N. Y., 23 Sept. '18—8 Mch. '19, producing charcoal and soda lime.
- WOOD, HENRY (IV) 2d Lt., C. A. C. Pvt., C. A. C., 17 Dec. '18; Corp., Mch. '18; 2d Lt., 25 June. '18. Narragansett Bay, 17 Dec. '17; Off. Tr. Sch., Ft. Monroe, Va., Apr. '18. A. E. F., 1 Aug. '18—5 Mch. '19; Liaison Officer and Judge Advocate, 54th C. A. C.
- WOOD, L. D. (VI) 1st Lt., C. A. C. Pvt., C. A. C., 3 Jan. '18; 2d Lt., 26 June; 1st Lt., 1 Nov. 30th Co., Narragansett Bay, 3 Jan. '18; Inst. in Electricity, Ft. Monroe, Va.
- WOOD, R. O. (XIV) Ensign, U. S. N. R. F. (A). Aviation Mechanic, U. S. N. R. F., 1 May '17; Ensign, U. S. N. R. F. (A), 25 Oct. '18. Squantum Station, 1 May '17; Ground School, M. I. T., 27 Mch. '18; Inst., Pensacola, Fla., 25 Oct. '18—1 Feb. '19.
- WOODRUFF, J. C. (X) Maj., C. W. S. Capt., Gas Defense Div., Sn. C., Sept. '17; Maj., Mch. '18; transferred to C. W. S., Aug. Technical Director, Gas Defense Service, Washington, D. C., responsible for technical details of production of gas masks, Sept. '17; Director of Chemical Mfr. and Development Sect., Gas Defense Div., C. W. S., New York, Aug. '18—May '19.
- WOODWARD, E. L. (VI) Sgt., Engrs. Entered Service, 22 July '18. 35th Co., Transportation Corps., Engrs. A. E. F., 13 Nov. '18—Sept. '19; Givres Railway Center.
- YERANCE, A. W. (I) Capt., Engrs. Pvt., 12 May '17; 2d Lt., Engr. O. R. C., 15 Jan. '18; 1st Lt., Engrs., N. A., 6 Mch.; Capt., Engrs., 23 Oct. A. E. F., 8 June '18—22 May '19; 305th Engrs. Somme Offensive, 23 July—18 Aug. '18; St. Mihiel Offensive, 12-16 Sept.; Meuse-Argonne Offensive, 26 Sept.—11 Nov.

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- ALDEN, F. T. (I) 2d Lt., Engrs. Pvt., Engrs., 5 Oct. '17; Corp., 21 June '18; Sgt. 1 cl., 11 Aug.; Mr. Engr. (j. g.) 26 Mch., '19; 2d Lt., 7 May. Entered Service with 301st Engrs., 5 Oct. '17. A. E. F., 14 July '18—13 June '19. St. Mihiel Offensive; Operations in the Weevre; Army of Occupation.
- APPLEQUEST, J. A. (VI) 2d Lt., A. S. A. Entered Service, 28 Feb. '18; Commissioned, 17 July '18. School of Military Aeronautics, M. I. T., 2 Mch. '18; stationed at Union Switch and Signal Co., Swissvale, Pa., testing Le Rhone Motor; Engr. Div., at Rockwell Field, San Diego, Calif., 4 Oct. '18—2 Jan. '19.
- AYRES, RICHARDSON (I) Maj., C. A. C. 1st Lt., C. A. R. C., 27 Nov. '17; Capt., C. A. C., 6 Sept. '18; Maj., 25 Oct. Off. Tr. Camp, 27 Aug. '17; Ft. Rosecrans, Calif., 27 Nov.; School of Fire, F. A., Ft. Sill, Okla., 9 Feb. '18; returned Ft. Rosecrans, 30 Apr.; Asst. Adj., Adj., and Aerial Observer, Coast Defense of San Diego, 1 May—23 Dec '18.
- BABCOCK, H. A. (II) 2d Lt., A. S. Cadet, Ground School, University of Illinois, 24 Aug.—2 Nov. '17. A. E. F., Dec. '17—Dec. '18; attended 2d Aviation Instruction Camp; ran engine shops and overhauled engines at Tours; with Engine Div., Technical Sect., A. S., Paris, 1 July '18; Officer in Charge, Engine Sub-Div. of Technical Sect., writing and publishing engine handbooks, until Dec. '18.
- BAILEY, R. T. (I) Capt., Engr. O. R. C. Camp Leavenworth, Kan., July—Dec. '17. See Civilian Record.
- BALLARD, V. V. (I) 1st Sgt., Engrs. Sgt., Engrs., 25 July '17; 1st Sgt., 14 Oct. '18. Co. C, 502d Engrs., 25 July '17. A. E. F., 24 Nov. '17—18 July '19; Student, University of Toulouse after armistice.
- BARNARD, J. M. (III) Capt., Ord. Corps. 1st Lt., Ord. Corps., 23 Nov. '17; Capt., 6 May '19. Off. Tr. Camp, Plattsburg, N. Y., 23 Aug. '17; Watervliet Arsenal, N. Y., 15 Dec. A. E. F., 22 Sept. '18—27 June '19. American Base Arsenal, Mehun-sur-Yevre, 15 Oct.—June '19.
- BEARDSLEY, R. O. (VI) 2d Lt., C. W. S. 1st Off. Tr. Camp, Presidio, San Francisco, Calif., 12 May '17; Candidate, 16th Provisional Tr., Regt., Ft. Scott, Calif. Disch. as physically disqualified for active service, 26 June '17; re-entered service under Limited Service Ruling as 2d Lt., C. W. S., Hq., Washington, D. C., 29 Aug. '17—1 Feb. '19.
- BECKER, JOHN, JR. (II) 2d Lt., C. A. C. Off. Tr. Camp, Ft. Monroe, Va., until Dec. '18.
- BENBOW, D. F. (II) Capt., Ord. Corps. 1st Lt., Ord. Corps., 7 July '17; Capt., 19 Jan. '18. A. E. F., 18 Feb '18—10 Jan. '19. Citation from Commander-in-Chief, A. E. F. (Page 154.)
- BENNIS, A. T. (I) C. Y., U. S. N. R. F. Sea. 2 cl., 11 Dec. '17; Y., 3 cl., 1 May '18; Y., 2 cl., 1 July; C. Y., 1 May '19. Convo duty on U.S.S. San Diego, 12 Mch. '18; ship sunk by enemy mine, 19 July '18, Pelham Bay Park, N. Y., 1 Oct. '18; on U.S.S. Tiger, troop transport, 1 Apr. '19; on inactive list, 23 Aug. '19.
- BENSON, H. S. (II) Capt., Ord. Corps. 1st Lt., Ord. Corps., 10 Oct. '17; Capt., 28 June '18. Inspection Div., 10 Oct. '17. A. E. F., 15 Sept.—25 Dec. '18; Liaison Officer on trench warfare material, France; Disch., 15 Apr. '19. See Civilian Record.
- BOYER, J. A. (II) 1st Lt., Inf. Pvt., 6 Sept. '17; Corp., 16 Sept.; Sgt., 18 Apr. '18; 2d Lt., 1 June; 1st Lt., 13 Aug. Co. G, 324th Inf., 6 Sept. '17; Off. Tr. Sch., Camp Jackson, S. C., 5 Jan. '18; Camp Sevier, S. C.; 8th Co., 1st Repl. Regt. Inf., Camp Pike, Ark., 10 June '18; Camp MacArthur, Texas, 25 June '18—15 Mch. '19; Port of Embarkation, N. Y., Port of Embarkation, Norfolk, Va., and Camp Gordon, Ga., until 21 Oct. '19. (Page 282.)
- BRAY, J. L. (III) with Engrs., rank unknown. Served until Dec. '18.

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- BREED, F. N.** (IV) 1st Lt., Engrs. 2d Lt., Engrs., 5 Feb. '18; 1st Lt., 13 Nov. In France June '17; Member Tech Unit, American Field Service, engaged in ammunition transport work on Chemin des Dames Front for five months. A. E. F., Div. of Cons. and Forestry, Hq., C. E., designing hospitals, warehouses, barracks, and camps, Feb. '18—Apr. '19; Inst., A. E. F. Arty. Training Center, Bellevue, Apr.—9 July '19. (Page 86.)
- BROWN, K. H.** (VIII) Pvt., C. A. C. C. A. Sch., Ft. Monroe, Va., 9 Nov. '18—Feb. '19. See Civilian Record.
- BROWN, S. H., JR.** (XIII) C. C. M., U. S. N. R. F. C. B. M., 6 Apr. '17; C. C. M., U. S. N. R. F. U. S. S. Nebraska, Apr. and May '17; Asst. Inspector of Hull Cons., Bu. of Cons. and Repair, supervising construction of the standard 110-ft. Submarine Chasers, after 30 May '17.
- ***BUSEY, C. B.** (II). See Roll of Honor (pages 99 and 198).
- CALVIN, H. H.** 1st Lt., Ord. Corps, Philadelphia Dist. Ord. Office, until 24 Apr. '19.
- CANADAY, W. A.** (II) Sgt., Ord. Corps. Pvt., Ord. Corps, 11 Dec. '17; Sgt., 15 May '18. A. E. F., 28 June '18—19 Apr. '19 at an ordnance base, repairing French 75-mm. and 155-mm. howitzers, 15 June; in charge of all motorcycle repairs of the C. A. C. Regt., Arty. Park, 1st Army. Meuse-Argonne Offensive (Verdun).
- CANFIELD, EDWARD, JR.** (VI) Col., C. A. C. Graduated from U. S. Military Academy, 12 Feb. '01; Capt., C. A. C., '09; Maj., '17; Lt. Col., '18; Col., '19. In charge of cons. Camp Devens, Mass., June—Dec. '17. A. E. F., Dec. '17—Apr. '19; Asst. Chief of Staff, 4th Div., in charge of administration and supply of Div. in France and Germany. Aisne-Marne Offensive, 18 July—6 Aug. '18; St. Mihiel Offensive, 12-16 Sept.; Meuse-Argonne Offensive, 26 Sept.—11 Nov.; Army of Occupation. Distinguished Service Medal. (Pages 139 and 184.)
- CARPENTER, C. H.** (II) 1st Lt., Ord. Corps, 17 Aug. '17. A. E. F., 23 Aug. '17—20 Nov. '18; Ord. Dept., G. H. Q., later Supply Sect. of General Staff.
- CARTWRIGHT, KENNETH** (II) Ensign, U. S. N. Ensign, U. S. N., 6 June '18; 4th Reserve Officers' Class, Military Academy, Annapolis, Md., 17 June—15 Sept. '18; Submarine School, New London, Conn., 15 Sept.—25 Mch. '19; 3d Officer, later 2d Officer on AL-1.
- CATCHING, H. H.** (I) 2d Lt., Aviation Sect., Sig. C. Sgt., on special duty, 144th Aero Sq., Kelly Field, Texas, Nov. '17.
- CATHER, J. H.** (IV) 1st Lt., Engrs. 1st Lt., Aviation Sect., Sig. C., 25 Oct. '17; transferred to 78th Engrs., 29 July '19. At Camps Morrison, Langley, Lee, Humphreys and Leach. See Civilian Record.
- ***CAVANAGH, HARRY** (I). See Roll of Honor (pages 89 and 165.)
- CHANDLER, R. W.** (VI) Maj., Ord. Corps., att. to A. S. 1st Lt., Ord. Corps, 1 Aug. '17; Capt., 20 Mch. '18; Maj., 20 Mch. '19. Flying Officer for Ord. Dept. for developing and testing airplane guns, equipment, and bombs in U. S. and abroad. A. E. F., 1 Jan. '18—1 Feb. '19; Liaison Officer with Royal Flying Corps, Mch.—May; with French three months testing machine guns at 7000 meters altitude. Somme Defensive; St. Mihiel Offensive; Meuse-Argonne Offensive. Wounded by machine-gun bullet, Mch. '18. See Civilian Record.
- CLARK, H. F.** (I) Maj., Engrs. Capt., Engrs., 2 Sept. '17; Maj., 28 Mch. '19; Casual, 2 Sept. '17. 312th Engrs., Camp Pike, Ark., 10 Dec. A. E. F., 14 Feb. '18—25 Apr. '19; 2d Engrs., 29 May—24 June '18; 7th Engrs., 1 Aug.; 314th Engrs., Senior Inst., 3d Corps Engr. School, Clamecy, Nievre, 25 Aug.; 307th Engrs., 12 Apr. '19; C. O., 320th M. G. Bn.; Office of Chief Engr., Washington, D. C., May—Sept. '19; Asst. Prof., Dept. Military Science, M. I. T. Aisne Defensive (Belleau Wood); St. Mihiel Sector; Vosges Sector.
- COSTNER, J. M.** (I) 1st Lt., Ord. Corps. In charge of transportation of Ord. Material in New York Dist. 20 Feb. '18—10 Mch. '19; C. O. of fourteen tool recovery plants of Ord. Dept. in New York Dist., 10 Mch. '19—20 Jan. '20.
- COX, R. S.** (III) Cadet, A. S., 4 Oct. '17. See Civilian Record.
- DAVIS, H. B.** (II) 1st Lt., A. S. A. 2d Lt., Inf., 23 Aug. '17; transferred to A. S., 10 Feb. '18; 1st Lt., 6 Nov. '18, Tr. Camp, Camp Travis, Texas. A. E. F., 29 Mch. '18—3 Aug. '19; with 650th Aero Sq., building American Aviation Acceptance Park, No. 1, Orly-sur-Seine; Personnel Officer, Adj., and C. O., Acceptance Park, No. 1.
- DAY, S. L.** (IV) Pvt., A. S., Photographic Sect. Drafted for limited service and went to Sacketts Harbor, N. Y., 29 Aug. '18; Aerial School of Photography, Cornell University, 13 Sept. '18; Draftsman, 29th Aero Photo Sect., Mitchell Field, Garden City, L. I., Oct.—Dec. '18.
- DESLOGE, JOSEPH** (VI) Sous-Lieut., French F. A. Camion Driver, American Field Service attached to French Army, Apr.—Nov. '17; Ambulance Driver, American Red Cross attached to Italian Army, Dec. '17—Apr. '18; Cadet, Apr. '18, later Sous-Lieut., attached 11th F. A., French Army. With the 21st Regt. Czechoslovak Inf., at Vouziers, Sept. '18. French offensive of Chemin des Dames, May—Nov. '17; Piave Sector, Dec.—Apr. '18; Champagne Offensive, Sept.—Nov. '18. Croix de Guerre.
- DEXTER, H. E.** (VI) Capt., Engrs. 2d Lt., Engrs., 2 May '17; 1st Lt., 21 Dec.; Capt., 1 June '18. A. E. F., 26 Dec. '17—11 Feb. '19. 1st Gas Regt. Lens Sector, Mch.—Apr. '18; Toul Sector, 1 June; Châteaue-Thierry, and Vosges Mountains, July—Aug.; St. Mihiel Offensive, 12-15 Sept.; Meuse-Argonne Offensive, 26 Sept.—11 Nov. Received Citation for Meritorious Service, 19 Apr. '19.
- DOANE, R. H.** (IV) 1st Lt., Engrs. Co. 2, Engr. Off. Tr. Sch., Camp Humphreys, Va., 25 Oct. '18—11 Jan. '19. See Civilian Record.
- DOBLE, R. N.** (II) 1st Lt., Tank C. 301st Engrs., Co. E. Camp Devens, Mass., in Oct. '17; transferred 2d Bn. (Hv.) Tank C., Mch. '18; Disch., 16 Dec. '18.

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- DODGE, C. E. (I) 2d Lt., Ord. Corps. Pvt., Inf., 4 Oct. '17; 2d Lt., Ord. Corps., 20 Dec. War Dept., Washington, D. C., 19 Jan. '18; Proof Officer, Trench Warfare Range, Aberdeen Proving Grounds, Md., 6 June. (Page 265.)
- DREWSON, PIERRE (X) Maj., Inf., 24 Aug. '18. Entered Service, 24 Aug. '17; 155th Depot Brig., Camp Lee Va., M. G. Sch., Camp Hancock, Augusta, Ga., 26 Oct.—16 Dec. '18.
- DUDLEY, BOYD, JR. (III) Maj., Ord. Corps. Capt., Ord. Corps., 17 July '17; Maj., 3 July '19. Disch., 30 Sept. '19.
- DUGAN, W. E., JR. (I) Capt., A. S. A. Pvt., French Foreign Legion, 19 Sept. '14; Corp., later Sgt., 170th French Inf., Oct. '15; training for French Aviation Service, June '16; Spad 124 French Army (Escadrille Lafayette), Feb. '17; 1st Lt., A. S. A., 103d Aero Sq., Jan. '18; Capt., A. S. A. at American Aviation Acceptance Park, Orly-sur-Seine; Officer in Charge of Repairs and Tests, June '18—Mch. '19. Somme '14 (Battle of the Aisne) and '15 (Labyrinth); Champagne Offensive '15; Alsace Offensive '15; Defense of Verdun '16; Somme Offensive '17 and Defensive '18; Aisne-Marne Offensive '18; Alsace Sector '18; Flanders Offensives '18; Champagne Offensive '18. Wounded while with French Inf. French Citation. (Pages 157 and 161.)
- DUKE, L. B. (III) 2d Lt., A. S. A. Entered Service, 12 Sept. '17. Commissioned, 29 Mch. '18. School of Military Aeronautics, M. I. T., 3 Nov.; Graduated, Princeton School of Military Aeronautics, 12 Jan. '18; primary flying, Kelly Field, San Antonio, Texas, 21 Jan. '18; Concentration Camp, Camp Dick, Dallas, Texas, 5 Apr.; courses for Bombing Pilots, Ellington Field, Texas, 5 May; course in Aerial Gunnery, Taliaferro Field, Hicks, Texas, 16 Sept.; course in Aeronautical Engineering, M. I. T., 5 Oct.; with A. S., Engr. Div., Dayton, Ohio, doing experimental work in aeronautics for the Govt., 10 Feb. '19.
- EDGERTON, G. I. (IV) Ensign, U. S. N. R. F. (A). Commissioned Feb. '18. Jr. Aide to Commandant, U. S. Naval Air Station, Pensacola, Fla., and Communications Officer in charge of secret and confidential publications, coding and de-coding, Pensacola, July '18—May '19; qualified as Pilot of heavier-than-air machines.
- EICHER, A. M. (XI) 1st Lt., Engr. O. R. C. Ft. Leavenworth, Kan., 1 Sept. '17. Disch. on account of bad eyes, 30 Oct. '17. See Civilian Record.
- EISENBURG, ADOLPHE (VII) Pvt., 1 cl., M. C. Pvt., 1 cl., N. Mex. N. G.; Mus. 3 cl., Oct. '17; Pvt., M. R. C., Dec. '17. 1st N. Mex. N. G. became part of Hq. Troop, and M. P. Co., 40th Div., Camp Kearney, Calif.; transferred to M. R. C.; Harvard Medical School, 3 Dec. '17—Jan. '19; organized S. A. T. C. band at Medical School.
- ETHERIDGE, W. S. (I) Capt., Tank C. 1st Lt., Engr. R. C.; Capt., Engrs., 16 Mch. '18; Capt., Tank C., 15 July '18. Off. Tr. Camp, Ft. Leavenworth, Kan., 8 May—28 July '17. A. E. F., 28 July '17—17 Mch. '19; with 12th Engrs. (Ry.); in charge of operating gasoline electric tractors on 60-cm. railway in British 3d Army at Cambrai; assigned to Brigade Staff throughout St. Mihiel and Argonne. Cambrai Offensive, '17; Amiens Defensive, Mch. '18; St. Mihiel Offensive, Sept. '18; Meuse-Argonne Offensive, Sept.—Oct. '18. (Page 168.)
- FALLON, CHRISTOPHER (III) 2d Lt., C. W. S.
- FERGUSON, H. F. (XI) 1st Lt., Edgars. Entered Service, 13 May '17. A. E. F., 11 Dec. '17—25 Jan. '19; constructed water supplies in advance sect., S. O. S., for hospitals, camps, and villages.
- FERRY, E. E. (VI) Ensign, U. S. N. R. F. (A). Sea. 2 cl., 20 Aug. '17; C. Q. M. (A.), 10 Apr. '18; Ensign, 25 Oct. At Pelham Bay, Great Lakes Training Stations and M. I. T. Naval Aviation Detachment; Naval Aviation Station, Pensacola, Fla.; Ord. Officer, Naval Aviation Station, Hampton Roads, Va., for four months; inactive list, 29 Apr. '19.
- FLANIGAN, E. B. (II) 1st Lt., M. T. C. Entered Service, Dec. '17. A. E. F., 8 Aug. '18—4 Aug. '19; Service Park Unit 405, Hq., 3d Army Corps. Meuse-Argonne Offensive; Army of Occupation.
- FOX, H. R. L. (III) Capt., Royal Engrs. (British). Enlisted in British Inf., 11th Bn., Sherwood Foresters, 20 Oct. '14; transferred to Royal Engrs., May '15. B. E. F., May '15—Sept. '18; Field Engr., Adj., 4th Corps, Royal Engrs.; Acting Officer Commanding Royal Engrs., 4th Corps; Maj. (acting), 3d Co., Royal Engrs. in England. Festubert '15; Loos '15; Vimy Ridge '17; Somme '17; Cambrai '17; Retreat of Mch.—Aug. '18; Advance of Aug. '18. Gassed and wounded but not evacuated; shell shocked, 1 Sept. '18 and sent to England.
- FOX, R. H. (II) 1st Lt., Ord. Corps., Inspection Div. (Metallurgical), Ord. Dept., Washington, D. C., Nov. '17—May '18; transferred to Springfield Armory, Springfield, Mass.
- FRANK, A. W. (XIII) Comdr., C. C., U. S. N.
- FULLER, F. R., Maj., Inf. Entered Service, 1 Mch. '09; Maj., 21 June '18. A. E. F., 12 May '18—24 June '19; Member, 4th Div., Operations Sect. during Aisne-Marne Offensive; C. O., 10th M. G. Bn. (Motorized), 4th Div., 21 Aug. '18. Vesle Sector, Aisne-Marne Offensive; St. Mihiel Offensive; Meuse-Argonne Offensive; Army of Occupation. (Page 184.)
- GABRIEL, C. L. (X) 1st Lt., C. W. S. Hq., Washington, D. C., 13 Aug.—6 Sept. '18; Development Div., Willoughby, Ohio, 6 Sept.—1 Apr. '19; C. A. Off. Tr. Sch., Ft. Monroe, Va., Apr.—26 June '19. Personal letter of commendation from Maj. Gen. Sibert. (Page 258.)
- GALLAGHER, V. L. (VI) Ensign, Bu. of Steam Engr., U. S. N. R. F. (A.). Naval Aviation Detach., M. I. T., 6 Apr.—10 June '18; Keyport, N. J., 10 June—8 July '18; working on construction of taclometers for air-planes, New Rochelle, N. Y., July '18—6 Feb. '19.
- GOODRICH, C. F. (II) Lt., Ord. Corps. 5th Depot Co., Watervliet Arsenal, N. Y., in Oct. A. E. F., in Jan. '18.

REGISTER OF MILITARY RECORDS

- GRANT, J. S. (I) Lt., U. S. N. R. F. C. C. M., 21 Dec. '17; Ensign, 12 Mch. '18; Lt. (j. g.), 21 Aug. '18; Lt., 21 Mch. '19.
- GREENLEAF, HAROLD (I) 2d Lt., F. A. R. C. Pvt., 8th Tr. Btry., F. A. Cent. Off. Tr. Sch., 14 Aug. '18; 2d Lt., F. A. R. C., 4 Dec. '18.
- GUILFORD, E. H. (VI) 1st Lt., A. S. 2d Lt., 24 Aug. '17; 1st Lt., 6 Aug. '18. Radio Development Sect., Sig. C., 24 Aug. '17; Washington, D. C., 24 Nov. '17; Atlanta, Ga., 1 Mch. '18; New York City, 1 June '18; Mineola, L. I., 1 Aug. '18.
- HALL, H. W. (VI) Capt., C. A. C. 1st Lt., 27 Nov. '17; Capt., 2 Nov. '18. Entered Service, 23 Aug. '17. A. E. F., 18 Dec. '17—6 Feb. '19, with 44th Arty., C. A. C. Transferred to U. S. Gen. Hosp., No. 8, 23 Feb. '19 and disch., 9 June '19. Offensive at Ypres, 21 Mch. '18; Toul Sector (Seicheprey); Pont-a-Mousson Sector; Aisne-Marne Offensive; St. Mihiel Offensive; Meuse-Argonne Offensive. Gassed, 10 Oct. '18. Distinguished Service Cross. (Pages 133 and 181.)
- HALL, JOHN (XI) Capt., Sn. C. 1st Lt., 19 Jan. '18; Capt., 22 Aug. '18. Medical Officers Tr. Camp, Ft. Oglethorpe, Ga., Sn. Inspector during construction of Camp Eustis, Va., 8 Apr. '18. A. E. F., 25 Nov. '18—11 July '19; C. O., Sn. Sqd. 118, St. Nazaire, France; construction and repair work in hospitals in Base Section I and general sanitary work in Embarkation Camp; Student, University of Paris, 1 Mch.—June '19.
- HANSON, H. H. (X) Maj., C. W. S. Capt., C. W. S., 12 Dec. '17; Maj., 13 July '18. A. E. F., Dec. '17—May '18; assisted in starting gas laboratory in Paris; Asst. Chief of Gas Defense; sent to learn French process of mfg. mustard gas. Returned to U. S. and started construction of mustard gas plant at Edgewood Arsenal in May '18. See Civilian Record.
- HARRINGTON, C. H. (I) Sgt. 1 cl. Engrs. Co. F, 301st Engrs., Camp Devens, Mass. A. E. F., France, July '18—Mch. '19; Army Candidates Sch., Langres; Coblenz, Germany, Feb. '19. Army of Occupation.
- HERRESHOFF, N. G., JR. (VI) Pvt., A. S. Entered service, 29 Mch. '18; 29th Photo Unit, Aero Photography; spent three months in intensive military training, one month at Photo School in Rochester, N. Y., and five months practicing at aviation fields.
- HIGGINS, C. F., 2d Lt., Inf. Co. I, 301st Inf.
- HILDRETH, A. G. (V) Candidate, 17th Prov. Tr. Regt., Plattsburg, N. Y., 23 Aug. '17. Discharged from service because of injury received.
- HOBSON, C. F. (X) Lt. (j. g.), U. S. N. R. F.
- HODGE, G. E. (V) Ensign, U. S. N., 6 June '18.
- HOLBROOK, E. C. (I) 1st Lt., Engrs. Entered service, 2 Sept. '17; 104th Engrs., 10 Dec. '17. A. E. F., 19 June '18—22 May '19. Center Sector, Haute Alsace Sector; Meuse-Argonne Offensive.
- HOMAN, E. L. (II) 1st Lt., Engrs. Commissioned, 15 Aug. '17. Plattsburg, N. Y., 12 May '17; Engr. Off. Tr. Camp, Washington, D. C., 15 June—15 Aug. '17. A. E. F., Mch. '18—Mch. '19; with 302d Engrs., 77th Div.; transferred to 317th Engrs., 92d Div., 14 July '18; repaired trenches and wire near St. Die; maintained roads, constructed dugouts in sectors near Nancy; built water towers and dug wells at Le Mans, Dec. '18—Feb. '19; maintained roads around Camp Pontanzen until 25 Feb. '19.
- HORNOR, A. P. (VI) 2d Lt., C. A. C. Pvt., 7th Co., C. A. C.; commissioned, 25 Sept. '18. Boston, Mass., 22 May '18; Off. Tr. Sch., Ft. Monroe, Va., 5 July '18; Advanced Orientation School, 5 Oct. '18; 34th C. A. C., 4 Nov. '18; Telephone Officer, 2d Bn. until 10 Dec. '18.
- HOWARD, G. B. (I) 1st Lt., Engrs. A. E. F., Co. E, 17th Engrs., Feb.—Dec. '18; transferred 317th Engrs., Jan. '19.
- HUGGINS, L. M. (II) Capt., Inf. 1st Lt., Nov. '17; Capt., Sept. '18. 1st Porto Rican Tr. Camp, July '17; trained troops in Porto Rico during war.
- HUNSAKER, J. C. (XIII) Lt. Comdr., U. S. N. With Bu. of Construction and Repair, Navy Dept., Washington, D. C., especially charged with the design of large seaplanes. (Pages 9 and 244.)
- JONES, C. C. (I) enlisted, 9 Nov. '18. Disch., 12 Nov. '18.
- KAHN, MILTON, 2d Lt., C. W. S. Pvt. 5 Aug. '18; Corp. 1 Sept.; 2d Lt. 9 Nov. Hq. Co., 5 Aug.—15 Nov. '18; at Cleveland, Ohio, working on a new gas, 15 Nov.—9 Dec. '18.
- KALBFLEISCH, T. F., JR. (VI) Pvt. 1 cl. Engrs. Co. A, 6th Engrs., 1 July '18. A. E. F., 6 Aug. '18—25 Aug. '19; Interpreter for office of 3d Div., Engrs., 20 Nov. '18—10 Aug. '19. Meuse-Argonne Offensive.
- KEBBON, H. E. (IV) Maj., Engrs. Capt., Engrs., 4 Sept. '17; Maj. Q. M. C., 18 Mch. '18; transferred to Maj., Engrs. to rank from 18 Mch. '18. Cons. Q. M., Camp Ordway (later Meigs), Washington, D. C., 2 Oct.—22 Nov. '17; Cons. Q. M., in charge of building extension to Gen. Hosp., No. 1, Williamsbridge, N. Y., 22 Nov. '17—11 Jan. '18; Cons. Q. M., Camp Humphreys, Va., 11 Jan.—May '18; ordered to prepare plans and designs for permanent engr. school and post which were presented to Chief of Engrs. and Sec. of War, Apr. '19. Disch., 8 May '19. See Civilian Record and page 318.
- KEITH, G. M. (I) 1st Lt., Engrs. 2d Lt., Engr. R. C., 28 June '17; 1st Lt., Engrs., 3 June '18. With 301st Engrs., Camp Devens, Mass., 15 Aug.—26 Nov. '17. A. E. F., 5 Jan.—May '18; with 116th Engrs., 5 Jan. '18; Student, 2d Corps School, 30 Jan.—11 Mch.; with 2d Engrs., Ansanville Sector, 11 Mch.—22 Apr. '18; Instr., Engr. Off. Tr. Sch., Camps Lee and Humphreys, Va., 20 May '18—15 Jan. '19; Hq., Camp Humphreys, Jan.—22 Sept. '19; C. O., Engr. School Detachment, Camp Humphreys, Va., Sept.—31 Oct. '19.

TECHNOLOGY'S WAR RECORD

- KENRICK, A. F. [(II) Corp., Engrs. Pvt. 1 cl., 1 Sept. '17; Corp., 16 Apr. '18. Pvt., Co. B, 1st Regt., Mass. Engrs. (later 101st U. S. Engrs., 26th Div.), 29 June '17. A. E. F., 24 Sept. '17—4 Apr. '19. Toul Sector, 1 Apr.—26 June '18; Pas Fini Sector. (Château-Thierry), 7-18 July; Champagne-Marne Defensive, 15-18 July; Aisne-Marne Offensive, 18 July—6 Aug.; Rupt Sector, 2-12 Sept.; St. Mihiel Offensive, 12-16 Sept.; Troyon Sector (Marcheville Raid), 14 Sept.—10 Oct.; Meuse-Argonne Offensive, 25 Sept.—11 Nov.
- KINGSBURY, F. H. (XI) Capt., Engrs. 1st Lt., Engr. R. C., 23 June '17; Capt., Engrs., N. A., 14 June '18—Training Camp, Plattsburg, N. Y., 8 May '17; active duty, 10 July; assigned to Co. A, 306th Engrs., Camp Jackson, S. C., 5 Sept.; in command, Co. A, 28 May '18. A. E. F., 31 July '18—3 June '19.
- LANGE, W. H. (I) 2d Lt., Engrs. Entered Service, 14 May '17; with 306th Engrs., Camp Jackson, Columbia, S. C., in Nov. '17; with Co. D, 306th Engrs., on temporary duty, in Jan. '18. A. E. F., 25 Sept. '18—Feb. '19; with 319th Engrs., worked on buildings of Camp Pontanezen, St. Nazaire.
- LAUMAN, P. G. (XIII) Comdr., C. C., U. S. N. Navy Yard, Charleston, S. C.
- LAWLER, T. B. (VI) 2d Lt., F. A. Pvt., Inf., 20 July '18; 2d Lt., F. A. Camp Gordon, Ga. and Camp Taylor, Ky., until 11 Dec. '18.
- LEVINE, MAX (VIII) Capt., Sn. C., 28 Aug. '18. Instr. in Water and Milk Examination, School for Sn. Officers, Ft. Leavenworth, Kan., Feb.-Aug. '18. A. E. F., 29 Aug. '18—20 May '19; Bacteriologist for Water Service, Advanced Sector, and Inst. in Bacteriology, Central Medical Dept. Laboratory, Oct. '18—Jan. '19; in charge of Bacteriological Laboratory, Central Medical Laboratory, Feb.-May '19. Research work on dysentery bacilli, Army Medical School, Washington, D. C., June-Sept. '19.
- LITTLE, J. B. (III) 2d Lt., F. A. Commissioned 15 Aug. '17. Off. Tr. Camp, Ft. Oglethorpe, Ga., 13 May '17; 317th F. A., 81st Div., Camp Jackson, S. C., Aug. '17—29 Mch. '18. Disch. on account of illness.
- LOWE, R. M. (II) 1st Lt., Inf. 151st Depot Brig., Camp Devens, Mass., 15 Dec. '17—12 Dec. '18.
- LYNCH, W. C. (I) 1st Lt., Ord. Corps. Commissioned Sept. '17. Supervising Inspector on Fuses for Arty. Ammunition, 13 Sept. '17—17 Aug. '18. A. E. F., 17 Aug. '18—20 Jan. '19; Ammunition Inspector, Hq., 1st Army.
- MABBOTT, H. C. (II) Capt. (T.), C. A. C. 1st Lt., R. A., 9 Aug. '17; Capt. (T.), 22 Jan. '18. Off. Tr. Camp, Ft. Monroe, Va., 3d Sept. '17—10 May '18. A. E. F., 10 May—29 Nov. '18; Inst. in Army Anti-Aircraft Arty. Sch., for five months.
- McAVOY, F. T. (I) Corp., Inf. Pvt., Inf., 24 Sept. '18; Corp., Feb. '19. Off. Tr. Camp, Camp Sevier, 24 Sept. '18; 156 Depot Brig., Camp Jackson, S. C., Nov. '18—14 Mch. '19.
- McGRATH, D. J. (I) Capt., C. W. S. 1st Lt., Gas Defense Service, 30 Nov. '17; Capt., C. W. S. July '18. In service Nov. '17—Feb. '19.
- *McKENNEY, K. C. (VI). See Roll of Honor (page 111).
- McKNIGHT, W. F. (X) 1st Lt., Aviation Sect., Sig. C. With 192d Aero Sq., 2 Jan. '18.
- MANNING, H. G. (X) 2d Lt., Ord. Corps. Pvt., 14 Dec. '17; Sgt. 1 cl., 21 Dec. '17; 2d Lt., 13 Sept. '18. Inspector, National Brass and Copper Tube Co., Hastings on Hudson, N. Y., 31 Dec. '17; Cent. Off. Tr. Sch., Aberdeen Proving Ground, Md., 6 June '18; engaged in experimental ballistics, Aberdeen Proving Ground, 10 Feb. '19.
- MARSHALL, E. M. (III) 2d Lt., Ord. Corps. Candidate, Presidio of San Francisco, Calif., 12 May '17; 2d Lt., 15 Aug. '17. A. E. F., 6 Sept. '18—21 July '19; Mobile Ord. Repair Shop, 3d Corps, Arty. Park, in Oct. '18; Asst. Div. Ord. Officer, 5th Div.
- MASON, M. C. (VI) 2d Lt., Engr. R. C. Pvt., Engrs., 9 Aug. '18; 2d Lt., 18 Dec. '18. 1st Engr. Tr. and Repl. Regt., 9 Aug. '18; Engr. Off. Tr. Camp, Camp Humphreys, Va., 20 Sept. '18—18 Dec. '18. See Civilian Record.
- MATTHEWS, L. A. (VIII) 2d Lt., Sn. C. School for Sn. Engrs., Camp Greenleaf, Ga.; 6 Sept.—12 Oct. '18; C. O., Sn. Sqd. 116, Camp Crane, Pa., 11 Oct.—31 Oct. '18; Camp Merritt, N. J., 1-11 Nov. '18. A. E. F., 12 Nov. '18—23 Aug. '19; Sn. Sqd. 116 and Sn. Sqd. 115 constructed and operated first delousing plant in Camp Pontanezen; in charge of a larger delousing plant, Apr.—9 Aug. '19.
- MAYERS, E. C. (I) 1st Lt., Q. M. C. 102d Sup. Tn., 27th Div., Camp Wadsworth, S. C. in Nov. '17. A. E. F., before 30 June '18.
- MERRILL, HAMILTON (X) Capt.—C. W. S. 1st Lt., Gas Defense Service, Sn. C., 26 Aug. '17; Capt., C. W. S., 19 July '18. A. E. F., 25 Sept.—23 Dec. '18; in England and France as Liaison Officer.
- MONTGOMERY, EDWARD (X) Capt., C. A. C. Commissioned Captain May '18. Inst., 39th F. A., School of Fire, Ft. Sill, Okla., in Mch. '19.
- MOORE, E. B. (VI) 1st Lt., Ord. Corps. Commissioned 8 Aug. '17. Inspector of Ord., Midvale Steel and Ordnance Co., Philadelphia, Pa., 7 Nov. '17—10 Nov. '18; Inspector of Ord., American Car and Foundry Co., Berwick, Pa., 10 Nov. '18—8 Apr. '19; Asst. C. O., Sandy Hook Proving Ground, 8 Apr.—8 July '19; Ord. Officer, 59th Arty. Regt., Ft. Winfield Scott, Calif., 8 July '19.
- MORLEY, J. H. (III) Lt., Engrs. Received Commission few days before the armistice and was then discharged from Service.
- MORRILL, C. H. Mr. Engr. (sr. gr.). Pvt., Engrs., 13 Oct. '17; Mr. Engr. (jr. gr.), 1 Nov. '17; Mr. Engr., (sr. gr.), 23 Engrs. (cons.). A. E. F., 30 Mch. '18—9 June '19; Asst. to Camp Engr., Camp No. 1, St. Nazaire, 20 Apr.—24 Aug. '18; attached to 1st Army at Front, 25 Aug. '18. St. Mihiel Offensive, Meuse-Argonne Offensive.

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- MOWRY, W. W. (XIV) 2d Lt., Sn. C. Sgt., M. D., 24 July '18; Sgt. 1 cl., M. D., 19 Aug. '18; 2d Lt., Sn. C., 11 Oct. '18. Inst., N. Y. School of Military Roentgenology, 16 May '18; Inst. in X-Ray Physics and Technique, Camp Greenleaf, Ga.; School of Roentgenology, 11 Oct. '18; Army Medical School at Washington, D. C., 14 Jan. '19; in charge of stock and materials and shipping of all X-Ray material at Medical Supply Dep., New York City, 5 Feb.—7 July '19.
- MURPHY, W. H. (X) 1st Lt., Inf. Candidate, Plattsburg, N. Y., 15 May '17; 2d Lt., 15 Aug. '17; 1st Lt., 27 July '18. 104th U. S. Inf., 26th Div.; Camp Bartlett, Westfield, Mass., 2 Sept.—2 Oct. '17. A. E. F., 3 Oct. '17—4 Apr. '19. Chemin des Dames Sector, 8 Feb.—20 Mch. '18; Toul Sector, 1 Apr.—14 June '18; Lys Defensive; 10-14 Apr. '18; Pas Finis Sector (Château-Thierry), 4 July—1 Aug. '18; Aisne-Marne Offensive, 18-23 July '18. Croix de Guerre, 26 Apr. '18; Corps Citation. (Page 149.)
- MURRAY, J. I. (VII) 2d Lt., Sn. C. Pvt., Nutrition Sect., Sn. C., Feb. '18; Sgt., Sn. C.; 2d Lt., Sn. C. In charge Mobile Water Purification Unit Laboratory attached 26th Engrs. St. Mihiel Offensive; Meuse-Argonne Offensive; Army of Occupation.
- MURRAY, M. W. (II) Maj., M. D. Entered Service, 3 Nov. '17; Maj., Sn. C., 3 Nov. '18. Surgeon Gen. Office, Washington, D. C.; organized work on Vocational Rehabilitation of Disabled Soldiers in U. S. Hospitals; made plans for development and use of "limited service" men both in this country and abroad. Requested by Gen. Pershing, 11 Nov. '18, to go abroad as adviser to the staff on vocational and technical education, in reference to (1) instruction in ordnance and other shops and (2) vocational rehabilitation, but orders were cancelled. Letter of recommendation from Surgeon General of the Army.
- MURRAY, W. J. (X) 1st Lt., C. W. S. Organic Research Chemist, American University Experiment Station, Washington, D. C., 26 Sept.—14 Dec. '18. See Civilian Record.
- NEFF, S. C. (III) Corp., Engrs. With 42d Co., 20th Engrs., 12 Feb. '18. A. E. F., May '18—June '19.
- O'BRIEN, W. F. (II) 1st Lt., Engr. Div., Ord. Corps. Inst., Aerial Drop Bombs, Wilbur Wright Field, Ohio, 20 Jan.—7 Oct. '18. A. E. F., 7 Oct. '18—1 Mch. '19; Inst., Machine Guns at 1st Corps and 2d Corps Schools.
- OSBORNE, F. J. (VII) 1st Lt., Sn. C. Attached to Surgeon General's Office, Sect. on Venereal Disease Control, 4 Dec. '17—11 Apr. '19; Post Representative, Comm. on Training Camp Activities, Law Enforcement Div. Port of Embarkation, Hoboken, and Camp Merritt, N. J.; New York City with military police to enforce Sect. 12 and Sect. 13 of the Selective Service Act.
- OTIS, H. N. (II) Sea., 2cl, U. S. N. R. F. Inspectors' School, M. I. T., in Nov. '17. See Civilian Record.
- PETTINGELL, J. M. (I) 2d Lt., A. S. A. Entered Service 27 Sept. '17; Ellington Field, Texas, 20 Apr. '18; Inst. in elementary flying and aerial acrobatics, Payne Field, West Point, Miss., 30 May '18. A. E. F., 22 Sept. '18—21 Feb. '19; Reserve Military Aviator; Air Service Base, Issoudun.
- PRETZINGER, F. A. (IV) Sgt. 1 cl., Q. M. C. Pvt., Inf., 1 Sept. '18; Sgt., Q. M. C., 20 Nov.; Sgt. 1 cl., 1 Dec. 9th Bn., 158th Depot Brig., Inf., Camp Sherman, Ohio, 1 Sept. '18; transferred to Cons. Div., Q. M. C. 1 Oct. and in charge of drafting room until 29 Apr. '19.
- *PROUTY, T. R. (IV). See Roll of Honor (page 110).
- PUTNAM, R. L. (II) Ensign, U. S. N. R. F. C. B. M., Cadet School, U. S. N. R. F. Dec. '17—Feb. '18; U. S. S. Mississippi in Apr. '18; released from Service, Jan. '19.
- RADFORD, D. H. (II) Pvt., Inf. (Limited Service). On detached service in Minneapolis, Minn., in a clerical capacity, 10 Sept. '18.
- REEVES, B. V. (X) 1st Lt., Ord. Corps. Supt., Retort and Gas Production Departments, U. S. Chemical Plant, Saltville, Va., producing sodium cyanide for poison gas purposes, 26 May '18—18 Mch. '19.
- REID, A. W. (I) Capt., F. A. 1st Lt., F. A.; Capt., 28 Sept. '18. Off. Tr. Camp, Ft. Sheridan, Ill., 5 Sept. '17; 16th F. A.; transferred to Hq., 4th F. A. Brig., Feb. '18. A. E. F., 30 Apr. '18—23 June '19; Communication Officer, 4th F. A. Brig., in charge of telephone and radio work at headquarters. Aisne-Marne Offensive, St. Mihiel Offensive, Meuse-Argonne Offensive, Army of Occupation.
- REIMAN, C. K. (X) Capt., C. W. S., 23 Oct. '18—16 Jan. '19. See Civilian Record.
- ROBINSON, F. A. (X) Pvt., F. A. F. A. Off. Tr. Sch., Camp Taylor, Ky., 30 Oct. '18.
- ROBERTS, W. T. (I) 2d Lt., Inf., Commissioned Mch. '17. On inactive list to take charge of govt. work. See Civilian Record.
- ROSENBERG, J. M. (I) Sgt., A. S. P. Pvt., 2 July '18; Corp., 10 Sept.; Sgt., 11 Dec. 113th Spruce Sq., in charge Truck Transportation, Cut-Up Plant, Vancouver, Wash., for Spruce Production Div., Bureau of Aircraft Production, 2 July '18—31 Jan. '19.
- RUBY, W. M. (II) Capt., Ord. Corps. 1st Lt., Ord. Corps., 10 Aug. '17; Capt., 29 June '18. In Arty. Ammunition Depot Frankford Arsenal, Pa.; Officer in Charge of Inspection of Raw Materials, 15 Jan. '18; Detachment Comdr., 15 July '18; in charge of men on guard duty, in transportation service and a group for instruction in optical work, 15 July '18.
- SAWYER, G. S. (I) 2d Lt., Engrs. Sgt., 6 Oct. '17; 2d Lt., 6 Sept. '18. A. E. F., 10 Dec. '17—1 July '19; 504th Engrs.; transferred 116th Engrs., 25 Oct. '18.
- SCHMITT, W. H. (VI) Pvt., C. A. C., Ft. Monroe, Va., 25 Oct. '18.
- SCHOFIELD, S. J. (XII) Enlisted as Pvt., British Columbia Co. of Western Universities Bn. in May '16; reported Lt. in Dec. '17.
- SEELYE, S. H. (VI) Pvt., Engrs. Camp Meade, Md., in Mch. '18; A. E. F., Co. G, 23 Engrs.

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- SHEPARD, F. J., JR. (VI) Capt., Ord Corps. 1st Lt., 22 Nov. '17; Capt., 17 Oct. '19. Trench Warfare Sect.; Engr. Div., Ord. Dept.
- SHUTTLEWORTH, WRIGHT (II) Capt., Inf. Entered Service, 2d N. Y. Inf., 25 Mch. '17; transferred to 2d Pioneer Inf., 11 Oct. '17; transferred to 54th Pioneer Inf., 20 June '18. A. E. F., 25 Mch. '17—20 Oct. '19.
- SLOAN, V. G. (I) Ensign, U. S. N. Entered Service, Naval Aviation Detachment, M. I. T., 12 Mch. '18; Buffalo, N. Y., and Curtiss Engr. Corp., Garden City, L. I., on cons. of the N-C boats until 25 Sept. '19.
- SMITH, A. N. (I) reported with Co. C, 302d M. G. Bn., Camp Devens, Mass.
- SMITH, C. F. (XI) 2d Lt., Sn. C. Entered Service 2 Nov. '18. Medical Officers' Training Camp, Camp Greenleaf, Ga., 18 Nov.—11 Dec. '18; Sn. Engr., Taylor Field, Montgomery, Ala., 12 Dec. '18—6 Feb. '19.
- SMOOT, H. K. (XIII) Ensign, U. S. N. R. F.
- SPRINGALL, C. F. (IV) Lt. (j. g.), U. S. N. Sea. 2 cl., U. S. Naval Detachment, M. I. T., 10 Nov. '17; C. Q. M., 6 Jan. '18; Ensign, U. S. N., 25 Mch. '18; Lt. (j. g.), 1 Oct. '18. In command of N. J. station where HS Seaplanes were built and tested; Ex. Officer, New York Aviation Office, Nov. '18—12 July '19.
- SPROWLS, G. M. (VI) Capt., Ord. Corps. 1st Lt., Ord. R. C., Arty. Sect., 27 Dec. '17; Capt., 31 Oct. '18.
- STENUS, H. H., Capt., Q. M. R. C. Ex. Asst. to Chief, Clothing and Equipment Div., in Waterproof Clothing Sect.
- STEWART, C. A. (I) Sgt. 1 cl., Engrs. A. E. F., Co. C, 1st Bn., 14th Engrs. (Ry).
- STICKNEY, R. C. (III) Maj., Inf. Capt. at beginning of war; Maj., 30 July '18. On Mexican Border until summer '18. A. E. F., 26 July '18—19 June '19, with 34th Inf. Puvanelle Sector; 2d Army Offensive. Gassed.
- SWENSON, G. A. (IV) 1st Lt., F. A. With 116th F. A., 24 Aug. '17—15 Jan. '19. See Civilian Record.
- SYMONDS, R. F. (II) 1st Lt., Ord. Corps. Production Div., Ord. Dept., 15 Jan. '18—Feb. '19.
- TAYLOR, J. I. (XI) 2d Lt., A. S. P. Bu. of Aircraft Production; Akron, Ohio, on balloon production program 5 Oct. '18—1 Mch. '19. See Civilian Record.
- THOMPSON, A. G. (II) 2d Lt., Ord. Corps. Pvt., Production Div., Carriage Sect., Ord. Dept., 9 Mch. '18; transferred to Ord. Engr. School, Aberdeen Proving Grounds, Md., 10 Apr. '18; 2d Lt., Ord. Dept., 13 July '18. Proof Officer on Trench Warfare Material, Aberdeen Proving Grounds, Md., 13 July '18. (Page 264.)
- TILLINGHAST, J. A. (VI) Lt. (j. g.), U. S. N. R. F. C. Q. M., 31 May '17; Ensign, Sept. '17; Lt. (j. g.), Sept. '18. A. E. F., 16 Sept. '18—2 Jan. '19.
- TOMLINSON, D. A. (I) Capt., C. A. C. 1st Lt., C. A. R. C., 27 Nov. '17; Capt., 13 Sept. '18. Adj. and Cons. Q. M., Ill. N. G., at Camp Grant, Rockford, Ill., assisting in cons. of cantonment, July and Aug. '17; 2d Off. Tr. Camp, Ft. Sheridan, Ill.; C. A. Off. Tr. Sch., Ft. Monroe, Va., Aug. '17; Inst., Dept. of Orientation, Ft. Monroe, Va., until 25 Jan. '19. See Civilian Record.
- TRIPLETT, W. H. (III) 2d Lt., F. A. Btry. A, 340th F. A., Camp Funston, Kan., in Mch. '18.
- VAUGHAN, C. B. (II) 2d Lt., F. A. Pvt., 1 cl., 5 Jan. '18; Sgt., 19 Apr. '18; 2d Lt., F. A., 10 July '18. Camp Jackson, S. C., 6 May '18. A. E. F., 10 June '18—Jan. '19; F. A. Repl. Regt., La Courtine, 27 June; Arty. Sch., Saumur, 9 July; Hv. Arty. Sch., Angers, 2 Oct.; Trench Arty. Repl. Bn., Doulevant la Château, Nov. 11; La Greve, 1 Dec.; 6th C. A. C., Brest, 28 Dec. '18.
- WALKER, H. D. (IV) Lt. (j. g.), U. S. N. R. F. C. P. O., U. S. N. R. F., 24 Nov. '17; Ensign, 11 Dec. '17; Lt. (j. g.) and transferred to Pay Corps, 27 Nov. '18. Fore River Yards, Bethlehem Shipbuilding Corp., Quincy, Mass., Nov. '17—5 Apr. '19.
- WALSH, RAYCROFT (I) Maj., A. S. Entered Service, '10; F. A. School of Fire, Ft. Sill, Okla., Sept. '17; in command, 2d Tr. Brig., Kelly Field, Texas, A. S. Concentration Camp, Oct. '17—June '18; graduated, Pursuit and Aerial Gunnery School, Rockwell Field, Calif., Sept. '18; Asst. Executive, Administrative Executive, and Asst. Chief, Supply Group, Office of Director, A. S. Oct. '18 to date (11 Nov. '19).
- WARD, J. H. (X) Cadet, A. S. Aviation Concentration Camp, Garden City, L. I., in Nov. '17. A. E. F., 16th Foreign Detachment, Aviation Sect., Sig. C., in Jan. '18; 3d Aviation Instruction Center, Issoudun.
- WATKINS, H. G. (I) Mr. Engr. (sr. gr.), Engrs. Mr. Engr. (jr. gr.), 1 June '17; Mr. Engr. (sr. gr.), 15 May '18. A. E. F., 27 July '17—27 Apr. '19. Cambrai Offensive, '17; Somme Defensive, 21 Mch.—6 Apr. '18; Aisne-Marne Offensive, 2-6 Aug. '18. Wounded at Voie des Dunes, 1 June '18.
- *WEEKS, KENNETH (IV). See Roll of Honor (pages 88, 151 and 160).
- WELLING, W. C. (VI) Mr. Gun., C. A. C. Pvt., C. A. C., 25 Apr. '18; Mr. Gun., 29 Aug. '18. Asst. Inst., Mathematics, C. A. Sch., Ft. Monroe, Va., 21 Aug.—2 Dec. '18.
- WETTENGEL, E. B. (V) Capt., F. A. 1st Lt., 27 Nov. '17; Capt., 23 Oct. '18. 2d Off. Tr. Camp, Ft. Niagara, N. Y., 27 Aug. '17; Personnel Adj., 85th F. A., Oct. '18.
- WILLIAMS, H. C. (IV) 2d Lt., A. S. Hq., 76th Div., Camp Devens, Mass., in Jan. '18; 508th Aero Cons. Sq., in Jan. '19.
- WILLIAMS, H. D. (XI) Sgt., F. A. Engr. Corps in Nov. '17; Sgt., Btry. D, 64th Regt., 2d Bn., in Mch. '18. A. E. F., Arty. School, Saumur, in Oct. '18.
- WILLIAMS, R. P. (IV) reported in Nov. '17 at Camp Devens, Mass.
- WILLIS, C. M. (IV) Corp., Sn. C. Pvt., Sn. Sqd. No. 68, 28 June '18; Corp., June '19. A. E. F., 23 Aug. '18—7 July '19; acted as Draftsman, Sn. Sqd.; Teacher, Mechanical and Architectural Drafting, Army School, St. Nazaire.

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- WISE, J. S. (IV) Candidate, Engrs. Pvt. 1 cl., Co. 8, Receiving Bn., Camp Pike, Ark., 1 Apr. '18; 4th Engr. Off. Tr. Camp, Camp Humphreys, Va., 25 Sept.—27 Nov. '18.
- WRIGHT, R. G. (VI) 1st Lt., C. A. C. Ft. Harrison, 27 Aug. '17; 2d Tr. Camp, Ft. Monroe, 22 Sept.; 3d Co. (Mine), Coast Defense, Ft. Williams, Maine, 15 Dec.; Matériel Officer, Ft. Baldwin, Maine, 15 Sept. '18; Btry. B, 29th C. A. C., 1 Nov.—15 Jan. '19.

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- ACHARD, F. H. (VI) Capt., Engrs. 1st Lt., Engr. R. C., 2 Sept. '17; Capt., Engrs., 10 July '18. Tr. Camp, American University, Washington, D. C., 2 Sept. '17; 306th Engrs., 10 Dec.; 24th Engrs., "Shop and Supply Regt.," 24 Dec. '17. A. E. F., 29 Mch. '18—12 Aug. '19; 24th Engrs., Engr. Depot, Gievres; Office of Chief Engr., 2d Army, Sept., also Regtl. Adj., 1 Oct.—8 Nov.; Co. B, 24th Engrs., water supply work, later, collected engr. dumps, Vigneulles, Dec.; installed electrical and mechanical laboratories and carpenter shop, A. E. F., University, Beaune, Mch. '19. Toul Sector; St. Mihiel Offensive (Army Troops); Meuse-Argonne Offensive.
- ADLER, J. E. (X) 2d Lt., F. A. Off. Tr. Camp, Camp Jackson, S. C., 26 Apr. '17; Btry. B, 27th F. A., Camp McClellan, Ala.
- ALDEN, G. R. Capt., Q. M. C. Entered Service, 30 Nov. '17. Reclamation Div., Q. M. C., Washington, D. C. 30 Nov. '17; Q. M., Base Salvage Depot, Atlanta, Ga., June '18—7 Apr. '19. (Page 273.)
- ALLTON, R. A. (XI) Maj., F. A. Pvt., Off. Tr. Camp, 12 May '17; Capt., F. A., 15 Aug.; Maj., 16 Sept. '18. Candidate, 1st Off. Tr. Camp, Ft. Sheridan, Ill., 12 May '17; Hq. Co., 331st F. A., Camp Grant, Ill., 25 Aug.; Student, School of Fire for F. A., Ft. Sill, Okla., 28 Dec.; Inst. and Asst. Director, School of Fire, 9 Mch. '18—1 Mch. '19.
- *AREY, REUBEN (I). See Roll of Honor (page 106).
- ATWATER, A. R. (VI) 2d Lt., A. S. P., 16 July '18—12 Feb. '19. See Civilian Record.
- BAKEMAN, G. W. (XI) Member, Amer. Red Cross Sanitary Mission to Serbia, May '15; went to Salonica, Italy, Albania and Montenegro; U. S., Apr. '16; Asst. to American Ambassador to Russia for Prisoner of War Relief Work, June '16; volunteered for military service, Apr. '17, requested to remain in Russia; Member, with rank of Captain, Amer. Red Cross Mission to Roumania, Nov. '17—Mch. '18; Member, Russian Div., Comm. on Public Information, Russia, and Siberia, Mch. '18—June '19. (Pages 291 and 292.)
- BALCH, JOSEPH, JR. (VI) Pvt., 1 cl., F. A. Pvt., F. A., May '17; Pvt., 1 cl., 25 Aug. '17. Btry. A, Rhode Island F. A., May '17; Brig. Hq. Detachment, 51st F. A., 26th Div., 25 Aug. '18. A. E. F., 5 Oct. '17—30 Mch. '19; Chauffeur for Brig. Gen. Lassiter, Oct. '17—June '18; Telephone Operator, Headquarters Detachment, June '18—Apr. '19. Soissons Sector; Toul Sector; Aisne-Marne Offensive (Château-Thierry); St. Mihiel Verdun Sector.
- BALLINGER, T. D. (VII) 1st Lt., Sn. C., 5 Nov. '18.
- BARNES, P. S. (X) Ensign, U. S. N. R. F., 15 Feb. '17. Active service, July '18; Bu. of Steam Engr., Div. of Aeronautics, Balloon Gas Sect., Washington, D. C., July—Dec. '18; experimental work on helium.
- BARROWS, W. W. (IV) Corp., F. A. Pvt., F. A., 28 Aug. '18; Corp., 15 Nov. '18. Repl. Unit, F. A., Camp Jackson, S. C., 28 Aug. '18—10 Jan. '19. See Civilian Record.
- BEALE, A. S. (I) 2d Lt., A. S. A., R. M. A. Kelly Field, Tex., 12 Dec. '17; Scout Pilot; Hoboken; Disch., 12 Dec. '18.
- BECKER, L. S. (IV) Capt., C. A. C. 1st Lt., C. A. C., 10 May '17; Capt., 12 Sept. '18. A. E. F., 31 Sept. '17—1 Jan. '19; 30th Howitzer Regt.; 43d Regt., C. A. C., 15 Aug. '18. Lorraine Sector, 1 Apr.—1 Aug. '18; St. Mihiel and Meuse-Argonne Offensives.
- BECKMAN, H. E. (III) 1st Lt., Q. M. C. Pvt., Inf., 14 May '17; 2d Lt., Q. M. C., 15 Aug.; 1st Lt., 7 June '18. 1st Off. Tr. Camp, Ft. Sheridan, Ill., 14 May '17. A. E. F., 1 Aug. '18—July '19; in charge of distribution of clothing, Advance Q. M. Depot No. 1, shipped supplies to 1st, 2d and 3d Armies.
- BEEBE, H. B., 2d Lt., Engrs. Co. B, 101st Engrs. A. E. F., before Feb. '18; Hq. Co., 35th Div.
- BELLIS, A. E. (V) Maj., Ord. Corps. Metallurgist, Springfield Armory, Mass., in charge of heat treating, testing of methods used in mfr., and of cons. of laboratory and hardening shops, June '17.
- BERNHARD, JACOB (II) Sgt., Inf. Pvt., Inf.; Sgt., Co. F, Supply Tr., Camp Devens, Mass.; 1st Asst. Truckmaster, Co. C, 301st Supply Tr., Feb. '18. A. E. F.
- BERRY, C. J. (VI) 1st Lt., Sig. C. Pvt., Sig. C., 13 Dec. '17; 2d Lt., 9 Mch. '18; 1st Lt., 25 Oct. '18. A. E. F., Mch. '18—Feb. '19; Hq., Paris; work connected with airplane radio and with lighting of planes and terrains for night flying.
- BLACK, W. S. (III) Sgt., A. S. Pvt., A. S., 6 Mch. '18; Sgt., 15 Nov. '18. Aerial Photo Sect., School of Military Aeronautics, Cornell University, Ithaca, N. Y., 6 Mch. '18; Wilbur Wright Field, Ohio, May; Instructor, mapping and interpretation work, School of Military Aeronautics, Cornell, Aug. '18—Jan. '19.
- BLAKE, K. B. (XIV) Capt., C. W. S. 1st Lt., Gas Defense Service, Sn. C., 1 Oct. '17; Capt., C. W. S., 17 July '18. Field instruction, Gas Defense Service, 1 Oct. '17; in charge of purchase and overseeing of production of parts for gas masks, and materials for gas protection; in charge of bu. for appraisal of raw materials, plants and equipment, for canceled contracts, Nov. '18.
- BLOCK, L. R. (IV) Lt., U. S. N. Ensign, U. S. N., 6 Apr. '17; Lt. (j. g.), 1 Jan. '18; Lt., 1 July '18. On U. S. S. Missouri, Salem and Indiana, 7 Apr. '17—12 Feb. '19.

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- BOWMAN, LEE. (IV) 2d Lt., C. W. S. Pvt., Inf., 23 Sept. '17; Corp., Engrs., Oct.; Line Sgt., Nov.; Supply Sgt. and Official Photographer, Co. E, Dec.; Mr. Engr. (sr. gr.), Apr. '18; 2d Lt., 17 June; transferred to C. W. S., June '18. Co. E, 301st Engrs., Camp Devens, Mass., 23 Sept. '17; in charge of Topographical Office, Apr. '18; Camp Lee, Va., May; Asst. to Chief Gas Officer, 9th Div., Camp Humphreys, Va., 17 June; Camp Sheridan, Ala., Aug.; Div. Gas Officer, Nov. Disch., Mch. '19.
- BOYNTON, W. S. (II) 2d Lt., Ord. O. R. C. Pvt., Cons. Engr., Med. Dept., 9 July '17; applied immediately for transfer to Ord. Dept.; Corp., 7 May '18; 2d Lt., Ord. Corps, Nov. '18. Active duty, Engr. Detachment, Watertown Arsenal, Mass., 8 Jan. '18; Ord. Maintenance and Repair School, Metuchen, N. J., 1 Oct. '18. Inactive duty, 8 Jan. '19.
- BRADY, J. W. S. (I) 1st Lt., Marine Corps. A. E. F., with 13th Regt., Marine Corps, before Nov. '18.
- BRALY, R. F. (I) 1st Lt., Engrs. Engr. O. R. C., Nov. '17; Officer in charge, Engr. Depot, Camp Shelby, Miss.; in charge Warehousing Branch, Camp Supply Office, Camp Shelby, Apr. '19.
- BRAY, E. L. (VI) 2d Lt., Engrs. Pvt., Engrs., 15 Aug. '18; 2d Lt., 18 Dec. '18. Engr. Off. Tr. Sch., Camp Humphreys, Va.; Co. E, 1st Repl. Engrs. Disch., 18 Dec. '18.
- BREWER, A. F. (III) Ensign, U. S. N. R. F. C. M. M., U. S. N. R. F., 13 Aug. '18; Warrant Officer, 12 Dec.; Ensign, 17 Apr. '19. Steam Engr. School, Hoboken, N. J., 13 Aug. '18; Jr. Engr. Watch Officer and Student Engr., U. S. S. E. L. Doheny, 3d, Mediterranean and Adriatic Seas, 26 Dec. '18—20 Mch. '19; graduated from Steam Engr. School, 17 Apr. '19. Released from active service, 20 May '19. See Civilian Record.
- BRIEL, K. R. (I) Pvt., F. A. Entered Service, 5 Dec. '17; 306th F. A., Camp Upton, N. Y., Apr. '18. A. E. F., Apr. '18—July '19; at a university in England, spring '19. Baccarat Sector; Vesle Sector; Oise-Aisne Offensive; Meuse-Argonne Offensive. Wounded in the Argonne, 29 Sept. '18.
- BUCK, A. W. (VII) Maj., Amer. Red Cross, 27 Mch. '18; entered as civilian, 12 May '15; Sn. Comm. to Serbia, '15; Chairman, Amer. Red Cross Relief Unit to Serbia, '16; American Embassy, Paris, Oct. '18; with Amer. Red Cross Balkan Comm., served in Italy and was Director of Amer. Red Cross Unit to Albania, Jan.—July '19. Order of San Sava (Serbian), Fourth and Fifth Class.
- BURDICK, C. L. (II) 1st Lt., Ord. Corps. Entered Service, 10 Sept. '17; Research Laboratory of Physical Chemistry, M. I. T., doing research on nitrogen fixation; Nitrate Plant No. 2, Sheffield, Ala., putting results of research into commercial practice. Disch., 16 Dec. '18.
- BURLEIGH, P. C. (II) Pvt., Inf. Co. L, 301st Inf., Camp Devens, Mass.
- BURNHAM, H. G. (II) Pvt. 1 cl., F. A. Pvt., Rhode Island C. A., 6 June '17; transferred to F. A., 23 Aug.; Wagoner, F. A., 30 Aug.; Pvt. 1 cl., 1 Aug. '18. 9th Co., Rhode Island C. A., Ft. Standish, Mass., 6 June '17. Supply Co., 101st F. A., 23 Aug. '17. A. E. F., 9 Sept. '17—28 Mch. '19; Camp Coetquidan, Oct. '17; Base Hosp. No. 1, Vichy, Sept. '18—25 Jan. '19; Casual, Class E2, St. Aignan. Chemin des Dames Sector, 1 Feb. '18; Toul Sector, Apr.; Aisne-Marne Offensive (Château-Thierry); St. Mihiel Offensive.
- BURT, P. V. (VI) Ensign, U. S. N. R. F. Chief Yeoman, U. S. N. R. F., 10 May '18; Ensign, 28 Nov. '18. Purchasing Div., Bu. of Supplies and Accounts, Navy Dept., Washington, D. C., 10 May '18—1 Mch. '19; organized system for recording daily purchases of Navy Dept. in graphical form.
- BYLUND, W. R. (II) 1st Lt., F. A. 1st Lt., Ord. Corps, 20 Sept. '17; transferred to F. A. Small Arms Div., Ord. Dept., Washington, D. C., 20 Sept. '17; Training Camp, 2d Corps Arty. Park, Camp Jackson, S. C. A. E. F., at Front, July—Nov. '18; C. O., Arty. and Truck Repair Unit, 2d Corps, 1st Army. Meuse-Argonne Offensive.
- BYRNE, T. S. (IV) Capt., Ord. Corps. 1st Lt., Ord. O. R. C., July '17; Capt., Nitrate Div., Ord. Dept., N. A., Jan. '18. Inspector of Cons., U. S. Nitrate Plant No. 1, Sheffield, Ala., July '17; Asst. Director of Operation, U. S. Nitrate Plant No. 3, Toledo, Ohio, July '18—Feb. '19.
- CAHILL, G. A., JR., Lt., U. S. N. R. F. (A.). Inspector, Curtiss Aeroplane Co., Buffalo, N. Y.; Akron, Ohio, Feb. '19.
- CAIRNS, C. F. (XIV) Chief Electrical Gunner, U. S. N. R. F. (4 cl. Industrial), 10 Feb. '17; Engr., Submarine Signal Co., Boston, Mass., mfg. submarine signalling and detecting apparatus.
- CALHOUN, G. K. (VI) Lt. Comdr., U. S. N. Entered Navy, '04. Bu. of Steam Engineering, Navy Dept., Washington, D. C.
- CAPEN, G. P. (X) 1st Lt., Q. M. C. 2d Lt., Ord. R. C., Dec. '17; transferred to Q. M. C., May '18; 1st Lt., Aug. '18; in charge of leather inspection in large tanneries, Dec. '17; Inspection Div., Washington, D. C., Apr. '18; Supply and Equipment Div., Q. M. C., May, supervising mfr. of trench shoe leather; Shoe and Leather Div., War Industries Board. (See Civilian Record.)
- CARMICHAEL, A. W. (XIII) Lt. Comdr., U. S. N. Entered Navy, '04; Lt. Comdr., U. S. N., Oct. '17. Member, Joint Merchant Vessel Bd., determining suitability of ships for govt. service; superintending cons. of sea-going mine sweepers built for Navy in New York, '17; repairing vessels of the fleet for war service, Brooklyn Navy Yard, '18; returning vessels to their owners, '19.
- CARPENTER, A. W. (X) Capt., Sn. C. 1st Lt., Sn. C., 12 Mch. '18; Capt., 7 May '18. A. E. F., 7 Apr. '18—16 July '19; Laboratory Br., Water Supply Serv., Engr. Dept., Base Sect. No. 1, St. Nazaire.
- CHEN, S. Y. (XIII) Asst. Naval Constr., Foochow Navy Yard, Foochow, China.
- CLARK, G. H. (II) Lt. (j. g.), U. S. N. R. F. Ensign, U. S. N. R. F., 21 Dec. '17; Lt. (j. g.). Released from active duty to act as Supt., L. E. Knott Apparatus Co., Cambridge, Mass., 9 Jan. '18, where firing mechanisms for mines constituting the North Sea Barrage were built; Asst. Naval Inspector of Ordnance on depth charges at Erie, Pa., 22 July '18—9 Feb. '19.

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- CLARK, T. A. (VI) 1st Lt., C. A. C. Corregidor, Philippine Islands. C. A. C. Hq., Washington, D. C.
- COLEMAN, E. F. (I) C. M. M., U. S. N.
- CONLON, D. F., JR. (III) 1st Lt., Arty. A. E. F., before Nov. '18; 125th F. A.
- CROCKER, ZENAS, JR. (IV, VI) 2d Lt., A. S. Ground Off. Tr. Sch., Kelley Field, Tex., 30 Oct. '17; School of Military Aeronautics, M. I. T., Feb. '18; Engr. Officer, Motor Dept., Rich Field, Texas, June '18. A. E. F., July-Dec.; Engr. Off. Tr. Sq., Hq., London.
- CROSS, R. B. (VI) Capt., C. A. C. 2d Lt., C. A. C., 25 Aug. '17; 1st Lt.; Capt. Ft. Monroe, Va.; Coast Defense of Portsmouth, Ft. Constitution, N. H.
- CURTIN, G. A. (IV) Sgt., F. A. Pvt., Off. Tr. Camp, '17; Sgt., F. A. Off. Tr. Camp, Plattsburg, N. Y., '17. A. E. F.; Hq. Co., 2d Bn., 303d F. A., Bordeaux, Mch. '19.
- DARLING, G. S. (IV) Ensign, U. S. N. R. F. C. Q. M., U. S. N. R. F., 28 May '17; 27 Dec. '17. Newport; Aide to Commandant, Naval Experimental Station, and Material Aide, Naval District Base, outfitting sub-chasers for foreign service and experimenting on anti-submarine devices, 28 May '17—28 May '19.
- DAVIS, T. L. (V) 1st Lt., Ord. Corps. Inspection Div., Explosives Sect., New York and Washington, 20 Aug. '17—Mch. '18; Engr. Div., Explosives Sect., Washington, Mch.—June '18. A. E. F., June '18—Jan. '19; Overseas Explosives Branch, Ammunition Sect., Engr. Div., Office of the Chief of Ord. Officer; Explosives Sect., Engr. Div., Office of the Chief of Ord., Washington, D. C., Jan.—1 Apr. '19.
- DE COEN, E. G. (I) Maj., F. A. Entered Service, Sept. '14; Capt., F. A. in Apr. '17; Maj., 22 May '19. A. E. F., 31 July '17—19 June '19; C. O., Btry. E, 5th F. A.; Firing Inst., Army Art. School, Valdahon, Nov. '18—June '19. Toul Sector; Cantigny Sector (Cantigny); Montdidier-Noyon Defensive, 9-13 June; Aisne-Marne Offensive (Soissons), 18 July; St. Mihiel Offensive; Meuse-Argonne Offensive. Wounded and gassed, 9 June '18; Brigade Citation. Office of Adj. Gen., War Dept., Washington, D. C. (Page 179.)
- DEW, H. W. (III) 1st Lt., Q. M. C. Pvt., Off. Tr. Camp, '17; 2d Lt., Q. M. C., 15 Aug. '17; 1st Lt., 1st Off. Tr. Camp, Presidio, San Francisco, Calif.; 4th Div. Supply Tr., Camp Greene, N. C., 8 Mch. '18. A. E. F., May '18—Aug. '19; transferred to 4th Div., M. T. Officer, Jan. '19. Army of Occupation.
- EATON, F. W. (XIV) Ensign, U. S. N. R. F. Entered Service, 18 July '18. Submarine Service; Naval Academy, Annapolis, Md., in Oct. '19.
- EICHORN, W. N. (XI) Lt. (j. g.), C. C., U. S. N. R. F. C. M. M., U. S. N. R. F., 2 June '17; Ensign, 15 Oct.; Lt. (j. g.), C. C., 1 Apr. '18. Asst. Naval Aviator, Asst. Docking Master; Officer in Charge, Trade School, Employment Officer, and later Asst. to the Outside Supt., Hull Division, Navy Yard, Boston, Mass., 2 June '17—2 June '19.
- ELWELL, HALSEY (II) 1st Lt., Inf. Pvt., Inf., 8 Sept. '17; Corp., 16 Sept.; Sgt., 30 Sept.; Candidate, Off. Tr. Sch., 5 Jan. '18; 2d Lt., 1 June; 1st Lt., 28 Aug. '18. Camp Lee, Va.; Camp Jackson, S. C.; Camp Sevier, S. C.
- EVANS, H. R. (III) Candidate, Off. Tr. Sch. 9th Battery, F. A. Cent. Off. Tr. Sch., 14 Oct.—5 Dec. '18.
- FALLON, C. G. (III) Ensign, U. S. N. R. F. (A). Sea 1 cl., Naval Aviation Detachment, M. I. T., 16 Oct. '17; Curtiss Aeroplane Co., Hammondsport, N. Y.; Aircraft Factory, Philadelphia Navy Yard, Pa. Disch., May '19.
- FOLEY, J. F. (VI) 1st Lt., Engrs. Pvt., Off. Tr. Camp, 14 May '17; 2d Lt., Engrs., 15 Aug.; 1st Lt., 3 Nov. '18. 1st Off. Tr. Camp, Plattsburg, N. Y., 14 May '17; 301st Engr., 27 Aug.; 101st Engrs., Camp Devens, Mass., 6 Sept. '17. A. E. F., 26 Sept. '17—4 Apr. '19; 101st Engrs., 26th Div. Soissons Sector; Toul Sector; Aisne-Marne (Château-Thierry) Offensive; St. Mihiel Offensive; Meuse-Argonne Offensive.
- FONT, MANUEL (XI) Maj., Inf. 2d Lt., Inf., 4 Nov. '15; 1st Lt., 3 June '16; Capt., 25 June '18; Maj., 30 Oct. '18. Porto Rico Regt. Inf., San Juan, P. R., 4 Nov. '15; Camp Otis, Canal Zone, Panama, with Intelligence Dept., travelled through the Republics of Panama and Colombia to obtain military information, 27 June '17—10 Nov. '18.
- FORRESTER, G. W. (X) Lt., A. S. Pvt., Aviation Sect., Sig. C., Nov. '17; Lt., A. S., '18. A. E. F., before Dec. '17; 2d Prov. Aerial Sq., Line of Communications.
- FRANZHEIM, H. K. (IV) 1st Lt., A. S. Wilbur Wright Field, Dayton, Ohio; organization of 1st American Bombing School, Ellington Field, Tex.; Director of Military Aeronautics, Washington, D. C.; Hoboken, N. J. Compiled and edited first official text-book on Aerial Bombardment. Served in U. S., May '17—Dec. '18.
- GAGE, E. H. (XI) 1st Lt., Engrs. Pvt., Off. Tr. Camp, '17; 2d Lt., Engrs. R. C., 14 Aug.; 1st Lt., Engrs., N. A., Sept. '18. Sn. Inspector, Amer. Red Cross, the Balkans, Italy and Southern France, June '15—Mch. '16. 1st Off. Tr. Camp, Plattsburg, N. Y., May '17. A. E. F., 26 Nov. '17—5 Jan. '19; attached G-1, General Staff; Hq., S. O. S., Tours; Motor Supply Sect., Div. of Cons. and Forestry, Tours. (Pages 219 and 292.)
- GANS, R. S. (III) Capt., C. A. C. Entered Service, 23 Aug. '17; 2d Off. Tr. Camp, Ft. Monroe, Va. A. E. F., 12 Dec. '17—7 July '19; equipped 1st American tractor arty., Btry. D, 51st Regt., C. A. C., Mch. '18; M. T. Officer, 1st Separate Brig., C. A. C., later became 30th Brig., and in June '18 became the Railway Arty. Reserve; Asst. M. T. Officer, Hq., 7th Army Corps, Wittlich, Germany, 21 Dec. '18; Div. M. T. Officer, 90th Div., Apr.—June '19. Ypres Defensive (British), Mch. '18; St. Mihiel and Meuse-Argonne Offensives; Army of Occupation.
- GARDNER, F. Q. C. (VI) Col., General Staff. Capt., C. A. C., at beginning of war; Maj., 5 Aug. '17; Lt.-Col., 13 June '18; Col., 20 Sept. '18. In charge Torpedo Depot, U. S. Army; General Staff, Washington, D. C., 5 Oct. '17; Sec., General Staff, 10 Sept. '18. Distinguished Service Medal. (Page 140.)

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- GENTNER, W. A. (I) 2d Lt., Engrs. Pvt., M. D., 4 Oct. '17; Corp., May '18; transferred to Engr. Miscellaneous Personnel, 8 July; 2d Lt., Engrs., 26 Oct. '18. Ambulance Co. 303, Camp Devens, Mass., 4 Oct. '17; 5th Engr. Tr. Regt., Camp Humphreys, Va. Disch., 9 Jan. '19.
- GERE, E. C. (I) 1st Lt., Cav. Pvt., Off. Tr. Camp, 8 May '17; 2d Lt., O. R. C., 15 Aug.; 2d Lt., Cav., 24 Oct.; 1st Lt., 25 Oct. '17. 1st Off. Tr. Camp, Plattsburg, N. Y., 8 May '17; Ft. Ethan Allen, Vt., 29 Aug.; Camp Devens, Mass., 9 Sept.; 2d Cav. Regt., Ft. Ethan Allen, Vt., 16 Oct.; Troop A, 11th Cav., Camp Hill, Newport News, Va., 22 Nov.; Camp Engr., Camp Hill, Mch. '18; Adjutant, Sept.; Ft. Myer, Va., 7 Oct. '18—15 Jan. '19; 9th Cav., Camp Stotsenburg, Pampanga, P. I., 18 Mch. '19 to date (Nov. '19).
- GIBSON, A. T. (III) Ensign, U. S. N. R. F. Sea. 2 cl., U. S. N. R. F., Nov. '17; Gun. M. 3 cl., Mch. '18; Ensign, Oct. '18. U. S. N. R. F. Tr. Camp, San Pedro, Calif., Nov. '17; Naval Port Guard, San Francisco, Aug.; U. S. Connecticut, Atlantic Fleet, Oct. '18—Jan. '19.
- GILES, D. M. (III) 1st Lt., Ord. R. C., Watertown Arsenal, Watertown, Mass.
- GILMORE, W. S. (IV) Ensign, U. S. N. R. F. (A.). American Ambulance Field Service, France, Nov. '16; U. S. N. R. Flying Corps. Sept. '17; France and Italy, Nov. '16—Jan. '19. Bombed Pola, Oct. '18.
- GLANCY, W. E. (X) Pvt. 1 cl. C. W. S. Pvt., C. W. S., 29 May '18; Pvt., 1 cl. Oct. '18. Co. L, Chemical Bn., Edgewood Arsenal, installing mustard gas and ethylene plant units, 29 May '18; in hospital with gas burns; Aide in development of gas masks, Hood Rubber Co., Watertown, Mass., 19 Aug.—18 Dec. '18.
- GOODNOW, A. C. (X) Warrant Machinist, U. S. N. R. F. M. M. 1 cl., U. S. N. R. F., 5 Sept. '17; C. M. M. 1 Apr. '18; Warrant Machinist, 13 Sept. '18. Public Works Dept., Great Lakes, Ill., work in connection with cons. of Great Lakes Naval Training Station.
- GREELY, A. W., JR. (XIV) Capt., Sig. C. Entered Service, Nov. '17. Co. E, 52d Telegraph Bn. A. E. F., before Jan. '18; Army Signal Schools, Oct. '18.
- GREEN, H. I. (II) 2d Lt., A. S. Pvt., Aviation Sect., Sig. C., 12 Dec. '17; 2d Lt., 30 Mch. '18; transferred to A. S. N. R. Flying Corps. Sept. '17; France and Italy, Nov. '16—Jan. '19. School of Military Aeronautics, M. I. T., Jan. '18; Hq. Staff, Fire Protection Officer, M. P. Intelligence and Engr. Officer of 357th Aero Sq., Hazelhurst Field, Mineola, L. I., 30 Mch. '18; Flying instruction, 1 Oct.—11 Nov.; Hq. Staff of 1st Prov. Wing as Fire Marshal of all flying fields on Long Island, 15 Nov.—24 Dec. '18.
- HAGLIN, C. F., JR. (II) 1st Lt., Inf. Co. F, 358th Inf., Camp Custer, Mich. Service, 27 Aug. '17—1 May '18.
- HARRINGTON, M. H. (XI) 2d Lt., Engrs. Pvt., Inf., 20 Sept. '17; Sgt., Nov.; 2d Lt., Engrs., 23 July '18. Co. M, 302d Inf., Camp Devens, Mass., 20 Sept. '17. A. E. F., 16 Aug. '18—9 Sept. '19; in charge of Railway, Mechanical and Electrical Depts., Engr. Depot Base Section No. 2, St. Sulpice.
- HARTNETT, L. A. (IV) Sgt., A. S. Pvt., A. S., 8 Aug. '17; Corp., 8 Sept.; Sgt., 27 Feb. '19. A. E. F., 27 Oct. '17—29 Feb. '19; 95th Aero Sq., 1st Pursuit Group. Champagne Sector (att. 3d French Army) 18 Feb. '18; Toul Sector (att. 9th French Army) 3 Apr.; Battle of Seicheprey; Château-Thierry Salient, 2d Battle of the Marne (att. 6th Fr. A.) 29 June; Verdun Sector, St. Mihiel and Meuse-Argonne Offensives (att. 1st American Army) 3 Sept.—15 Nov. '18.
- HARTY, J. J., JR. (IV) Capt., Ord. Corps. Entered Service, Feb. '18. A. E. F., '18—'19; Adv. Ord. Depot No. 1; Base Ord. Depot No. 4, Base Section No. 2, May '19.
- HASTINGS, J. M., JR. (X) 1st Lt., C. W. S. Commissioned in Reserve after armistice. See Civilian Record.
- HAYES, O. R. (V) 1st Lt., Inf., 2d Lt., Inf., 26 Oct. '17; 1st Lt., 1 June '18. 27th Inf., Philippines, for nine months; Siberia, for six months.
- HAYNES, R. B. (I) Capt., Ord. Corps. Pvt., Cav., New York N. G., 16 July '17; 1st Lt., Ord. Corps., 26 Aug.; Capt., Feb. '19. Troop D, Sq. A, New York N. G., 16 July '17; transferred to Ord. C., 26 Aug. '17. A. E. F., 26 May '18—5 July '19; French Army School, Ft. Vincennes, July '18; Liaison Officer on repair of artillery, 4th French Army, Chalons-sur-Marne, Champagne Sector, 1 Sept.; Asst. to Ord. Officer, Paris, Dec.; with 2d Army, inspecting German arty. surrendered after the armistice; Student, Trinity College, Cambridge University, England, Mch. '19.
- HENDRICKS, J. F. (VI) 2d Lt., Ord. Corps. Inspector of Cons., Nitrate Plant No. 1, Sheffield, Ala., Dec. '17—31 Jan. '19.
- HERBERT, W. F. (IV) 1st Lt., Aviation Sect., Sig. C. Entered Service, Feb. '18. 414th Sq., Spruce Production Div., Powers, Ore., '18; Spruce Div., Washington, D. C., Mch. '19.
- HERSOM, F. C. (VI) Lt. (j. g.), C. E. C., U. S. N. R. F. Gunner (Elec.), U. S. N. R. F., Dec. '17; Ensign, July; Lt. (j. g.), C. E. C., Apr. '19. Hq., 1st Naval District, Boston, Mass., selecting men for Naval Off. Tr. Schools from civilians and enlisted men; finding specialists when needed, and promoting enlisted men to officers.
- HILL, C. R. (III) Sgt., Tank C. Pvt., Tank C., 11 June '18; Sgt., 25 Oct. '18. Hq. Co., 302d Bn., 11 June '18. A. E. F., 9 Oct. '18—24 Apr. '19.
- HODGMAN, S. H. (I) Capt., Engrs. 2d Lt., Engrs., 10 July '17; 1st Lt., 17 Jan. '18; Capt., 18 Aug. '18. 10th Engrs., American University, Washington, D. C., 10 July '17. A. E. F., France, 10 Sept. '17—9 Feb. '19; logging and sawmill operations in various parts of France.
- HOLMES, W. N. (X) Capt., Ord. Corps. 1st Lt., Ord. Corps., 23 Aug. '17; Capt., 11 Mch. '19. New York District Office, Inspection Div., Ord. Dept., 23 Aug. '17.
- HOORNBECK, H. G. (II) Capt., M. T. C. 1st Lt., M. T. C., Mch. '18; Capt., Dec. '18. 453 Truck Co., Ft. Myer, Va., Mch. '18. A. E. F., before Dec. '18; Motor Reception Park.

REGISTER OF MILITARY RECORDS

- HORNER, H. B. (IV) Ensign (T.), U. S. N. Sea, U. S. N. R. F., 10 Sept. '17; Coxswain, Feb. '18; B. M. 1cl., Mch.; Ensign, U. S. N. R. F., May; Ensign (T.), U. S. N., 18 Sept. '18. Pelham Tr. Camp, 10 Sept. '17; Inst., Dec.; Off. Tr. Sch., Pelham, Apr. '18; Naval Academy, Annapolis, Md., May; U.S.S. New Mexico, Oct.—June '19; Brest, France, in Nov.; Navy Yard, N. Y., Jan.—June '19.
- HORSCH, W. G. (XIV) 1st Lt., C. W. S. Research Div., American University Experiment Station, Washington, D. C., 1 Oct. '18—19 Mch. '19. See Civilian Record.
- HOWLETT, A. E. (X) 1st Lt., C. W. S. Entered Service, 19 Dec. '17; development work on gas masks, Gas Defense Div., Philadelphia, Pa., Dec. '17; in charge of chemical end of mir. of horse masks, New York City, June '18.
- HUBBARD, E. A. (IV) Corp., C. A. C. Entered Service, 19 Dec. '17; Ft. Standish, Boston, 19 Dec. '17; Btry. F, 55th Regt. C. A., Ft. Strong, 15 Jan. '18. A. E. F., 23 Mch. '18—1 Feb. '19; Hvy. Arty. School, Saumur, 1 Oct. '18. Second Battle of the Marne; Operations on the Vesle; Meuse-Argonne Offensive.
- HURST, EDWARD (II) 1st Lt., A. S. Pvt., Off. Tr. Camp, 27 Aug. '17; 1st Lt., Inf., Dec.; transferred to A. S., Jan. '18. 2d Off. Tr. Camp, Plattsburg, N. Y., 27 Aug. '17; 153d Depot Brig., Camp Dix, N. J., Dec.; in charge of cons. and repair of airplanes (learned to fly), Rich Field, Waco, Tex., Jan. '18; special duty on Liberty Motors, Pensacola, Fla. and Detroit, Mich.; overseas orders cancelled by armistice; Waco, Tex., Nov. '18—Jan. '19.
- JOHNSTONE, WILLIAM, Regtl. Sgt. Maj., Inf. Pvt., 5 Oct. '17; Corps., 1 Oct. '18; Sgt., 1 Apr. '19; Regtl. Sgt. Maj., 5 Aug. '19. Co. K, 302d Inf., Camp Devens, Mass., 5 Oct. '17. A. E. F., 17 July '18—3 Sept. '19; Hq. Co., 302d Inf.; Hq. Co., Central Records Office Bn., 26 Nov. '18.
- JONES, A. M. (I) Maj., Inf. Capt., Inf., '17; Maj., '19. C. O., Co. A, 14th Inf., Ft. William H. Seward, Alaska, '17; 44th Inf., Vancouver Barracks, Wash., Apr. '19.
- JONES, G. H. (IV) 2d Lt., F. A. Entered Service, 12 May '17; attached 102d Engrs., Camp Wadsworth, S. C., Oct. '17; Hq. Co., 106th F. A., Clintonville, Wis., 12 May '17. A. E. F., 27 June '18—4 Mch. '19. St. Mihiel Offensive; Meuse-Argonne Offensive, 26 Sept.—7 Oct. '18.
- KASPER, H. P. (V) Sgt. 1 cl., Q. M. C. Pvt., Q. M. C., 17 June '18; Corps., 31 July; Sgt., 6 Aug.; Sgt. 1 cl., 5 Mch. '19. Q. M. C. Detachment, Ft. Warren, Mass., Coast Defense of Boston, 17 June '18—15 May '19.
- KAY, V. G., (formerly Katzenberger), (VI) 1st Lt., Ord. Corps. Entered Service, 16 July '17. A. E. F., eighteen months; Camp Officer, Saumur Arty. School, in charge of Ord. activities, 1 Feb. '18—10 Mch. '19.
- KAY, W. DEY., (formerly Katzenberger), (VI) Capt., C. W. S. 1st Lt., C. W. S., 15 Sept. '17; Capt., July '18. Officer in Charge, Contract Dept., Gas Defense Div., Washington, D. C., 15 Sept. '17; Chief, Contract Adjustment Sect., New York City, 11 Nov. '18—15 Mch. '19.
- KEMP, W. VANA. (XIV) reported in A. S.
- KENNARD, R. B. (X) 2d Lt., F. A. Pvt., Sig. Co., 30 Jan. '18; 2d Lt., F. A., Dec. '18. Photographic Unit, Langley Field, Va., 30 Jan. '18; F. A. Cent. Off. Tr. Sch., Camp Taylor, Ky. Disch., 20 Dec. '18.
- KENNEDY, F. H., JR. (IV) Sgt. 1 cl., A. S. Pvt., A. S., 16 Apr. '18; Sgt., 5 Sept.; Sgt. 1 cl., 11 Dec. '18. Studied meteorology, Army School, Waco, Tex.; transferred to Science and Research Dept., Bu. of Aircraft Production, A. S.; invented a bomb-sight device adopted by Govt.
- KENNEY, A. W. (X) Capt., C. W. S. 1st Lt. Gas Defense Service, Sn. C., 23 Nov. '17; transferred to Chemical Service Section, 16 Apr. '18; Capt., C. W. S., 22 July '18. American University Experiment Station, Washington, D. C. Service in U. S., 27 Nov. '17—19 Dec. '18. See Civilian Record.
- KNIGHT, SAMUEL (VI) 2d Lt., Engrs. Pvt., Sn. C., 1 Aug. '17; Motor Sgt.; 2d Lt., Engrs., 25 May '18. 354 Ambulance Co., Camp Funston, 1 Aug. '17; 4th Engr. O. T. C., Camp Lee, Va., May '18; 56th Regt. (Searchlight) Engrs., 25 May '18. A. E. F., 25 Aug. '18—25 Feb. '19; Anti-Aircraft Defense.
- LADD, J. W. B. (I) Sgt., A. S. Pvt., A. S., 15 Mch. '18; Sgt., 1 June '18. 869 Aero Sq., attached as Inst., Aviation Engines, to Motor School, Kelly Field, Texas.
- *LAMY, HENRY (III). See Roll of Honor (pages 89, 158 and 164).
- LANGLEY, M. E. (I) 1st Lt., F. A. Pvt., Off. Tr. Camp, 22 Aug. '17; 1st Lt., F. A., 27 Nov. '17. 2d Off. Tr. Camp, Plattsburg, N. Y., 22 Aug. '17; 302d F. A., Camp Devens, Mass., 15 Dec.; Brig. Hq., 151st F. A., Camp Devens, 30 Jan. '18; Inst., Theory of Arty. Firing, and Lecturer, 3d Off. Tr. Camp, 1 Feb. '18. A. E. F., 16 July '18—Feb. '19; Arty. Information Officer, 151st F. A. Brig., 1 Sept.; Acting Brig. Adj., 15 Dec. '18—20 Feb. '19. St. Mihiel; 2d Army Offensive (Marcheville), 1-11 Nov. '18.
- LAWRENCE, H. M. (III) Pvt., Inf. 30th Bn., Ft. Liscum, Alaska, 14 Oct.—31 Dec. '18. See Civilian Record.
- LEAVITT, G. E., JR. (II) 2d Lt., F. A. Pvt., 1 cl., Off. Tr. Camp, 15 May '18; 2d Lt., F. A., 25 Sept. '18. Inf. Sect., Off. Tr. Camp, 15 May '18; transferred to F. A. Sect., 1 June; Inst., F. A. Cent. Off. Tr. Sch., Camp Taylor, Ky., 26 Sept.—7 Dec. '18. See Civilian Record.
- LEMAIRE (formerly Lehmaier), L. H. (III) Capt., Australian Inf. Pvt., 11 Sept. '14; Corp., 10 Oct. '14; 2d Lt., 6 July '15; Lt., Sept. '15; Capt., 8 May '16; Capt., Australian Reserve, 23 Apr. '18. Australian E. F., 18 Aug. '14—Feb. '18; 1st Australian Naval and Expeditionary Force and 4th Bn. 1st Australian Inf. Brig.; New Guinea Campaign, Aug. '14—Feb. '15; Egypt, '15; Gallipoli Campaign, Aug.—Dec. '15; Arabian Campaign, Jan.—Mch. '16; France, Apr. '16—'18. Wounded at Pozieres, '16 and Lagincourt, France, '17. Discharged, medically unfit, May '18, remobilized with branch of Intelligence Corps, May '18. Received French Medal of Honor (Bronze) and Mentioned in Dispatches, '14. (Page 164.)

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- LEONARD, M. M. (V) Lt. (j. g.), Chaplain Corps, U. S. N. U.S.S. America, in transport service, 26 Dec. '17; America sank at dock, Hoboken, N. J., Oct. '18; transferred to U.S.S. Utah, 3 Feb. '19. Engagement with submarine, indecisive.
- LEONARD, M. W. (VI) Pvt. 1 cl., Engrs. Co. A, 23d Engrs., 30 Sept. '17. A. E. F., 24 Jan. '18—19 Jan. '19. Aisne-Marne Offensive; St. Mihiel Offensive; Meuse-Argonne Offensive.
- LEVY, M. E. (I) Lt., U. S. N. R. F. Lt. (j. g.), U. S. N. R. F., 20 Apr. '18; Lt., Dec. '18. Transport duty between U. S. and France; Navigator, U.S.S. Lancaster, Feb. '19.
- LEWIS, MALCOLM (VII) 2d Lt., Sn. C. School of Sanitation, Camp Greenleaf, Ga., 31 July '18; Sn. C. Detachment, Camp Beauregard, La., 21 Aug. '18. Disch., 20 Dec. '18. See Civilian Record.
- LLOYD, C. A. (IV) Pvt., Engrs. Co. B, 5th Engrs., 26 June '18. A. E. F., 12 Aug. '18—11 Feb. '19. 2d Army Offensive in Puvellerie Sector.
- LONG, E. B., JR. (XIII) 1st Lt., F. A. Pvt., Off. Tr. Camp, 13 May '17; 2d Lt., F. A., Aug.; 1st Lt., 10 Sept. '18. 1st Off. Tr. Camp, Plattsburg, N. Y., 13 May '17. A. E. F., Sept. '17—10 Sept. '18; Arty. School, Saumur; 1st F. A. Brig., Dec.; 7th F. A., 1st Div., 1 Jan. '18; injured, May; Hospital; F. A. Repl. Regt. C. O., Btry. D, 46th F. A., 16th Div., Camp Kearney, 10 Sept. '18. Toul Sector, Jan.—Apr.; Montdidier Sector.
- LOO, WAI G., reported on Board of the Chinese Navy, Peking, China.
- LOUGH, T. J. (I) Capt., General Staff. 1st Lt., Engrs., 1 Oct. '17; Capt., General Staff, 14 Mch. '19. Engr. Off. Tr. Camp, Camp Lee, Va., 28 Dec. '17. A. E. F., 26 Mch. '18—26 Mch. '19; G-4, General Staff, Hq., S. O. S., Tours, Troop Movement Section.
- MCCARTHY, C. J. (VI) Ensign, U. S. N. R. F. Instruction for submarine operation, 1 Aug. '18—9 Jan. '19.
- MACDONOUGH, J. V. (X) 2d Lt., F. A., Camp Taylor, Ky.
- MACDONALD, E. L. (I) Capt., Engrs. Pvt., Engrs., 17 May '17; Sgt., July; 2d Lt., 7 July '18; Capt., Sept. '18. A. E. F., 14 July '17—12 Aug. '19; Co. D, 11th (Ry.) Engrs.; 1st Engrs., 6 Jan. '19. Cambrai; St. Mihiel Offensive; Meuse-Argonne Offensive; Army of Occupation.
- MACE, T. H., JR. (IV) Gunner, Canadian F. A. Entered Service, Nov. '17. C. E. F., before Dec. '17; Co. C. Arty. Hq., 3d Div., Canadian F. A. (Page 164.)
- MAHONEY, F. H. (V) 2d Lt., A. S. Pvt., Engrs., 25 July '17; transferred to A. S., 22 Nov.; 2d Lt., A. S., 6 June '18. 101st Engrs., 25 July '17; Cadet, Day Bombardment Group, Texas, 22 Nov. '17. A. E. F., 1 Aug. '18—2 Feb. '19; Experimental Field, Orly (Seine), worked on wireless telephony for interplane communication.
- MARSH, H. D. (IV) Pvt., 1 cl., Engrs. Co. F, 301st Engrs., 76th Div., Camp Devens, Mass. A. E. F., '18—'19. Brohl, Germany, Feb. '19.
- MATTSON, W. R. (I) Capt., Engrs. Pvt., 1st Corps Cadets, Mass. N. G., Nov. '15; became 101st Engrs., U. S. A., Aug. '17; 1st Lt., Engrs. 27 July '17; Capt., 7 Aug. '18. A. E. F., 26 Sept. '17—4 Apr. '19; 101st Engrs., 26th Div. Chemin des Dames, 6 Feb.—21 Mch. '18; Toul Sector (Xivray), 1 Apr.—26 June; Champagne-Marne Defensive and Aisne-Marne Offensive (Château-Thierry), 19 July. Slightly wounded at Château-Thierry; St. Mihiel Offensive; Meuse-Argonne Offensive.
- MEANS, A. H. (III) 2d Lt., F. A. Pvt., Off. Tr. Camp, 4 Jan. '18; 2d Lt., F. A., 1 June '18. Off. Tr. Camp, Camp Upton, N. Y., 4 Jan. '18; 304th F. A., 18 Mch. '18. A. E. F., 24 Apr. '18—28 Apr. '19; Arty. School, Saumur, 2 May '18; 304th F. A., 1 Aug.; 151st F. A., 14 Nov. '18. Meuse-Argonne Offensive; Army of Occupation.
- MERRILL, M. W. (XIV) Sgt., 1 cl., C. W. S. Pvt., C. W. S., 7 Sept. '18; Sgt. 1 cl., 15 Sept. '18. Co. A, 4th Bn., Electrolytic Chlorine Plant, Edgewood Arsenal, Md.; later in charge of operating shift, Caustic Evaporator Plant. See Civilian Record.
- MERRILL, W. E. (XI) 2d Lt., Sn. C. Med. Off. Tr. Camp, Camp Greenleaf, Ga., 26 Aug. '18; Camp Sn. Engrs. Camp MacArthur, Waco, Tex., 24 Oct.—16 Dec. '18.
- MUNCH, BENJAMIN (II) Capt., Ord. Corps. 1st Lt., Ord. Corps. 5 July '17; Capt., 22 Jan. '18. Springfield Armory, Mass., 5 July '17—6 Aug. '19; Asst. Disbursing Officer; Disbursing Officer, Feb. '18—June '19; Chief of Adm., Apr. '18—Aug. '19; Sec., Army Claims Bd.; Member, Armory Salvage Bd.
- MUTERSBAUGH, A. M. (I) Capt., Engrs. Pvt., Off. Tr. Camp, 11 May '17; 1st Lt., Engrs. 11 June; Capt., May '18. Off. Tr. Camp, Ft. Leavenworth, Kan., 11 May '17; Co. F, 312th Engrs., 28 Aug. '17; 533d Engrs., May '18. A. E. F., 26 Aug. '18—1 July '19; in charge of saw mill just back of lines with 20th Engrs. (Page 221.)
- MUTHER, W. P. (I) 1st Lt., A. S. A. Pvt., Aviation Sect., Sig. C., 2 June '17; 1st Lt., A. S. (Pilot), 8 Nov. '17. A. E. F., 24 Nov. '17—27 Jan. '19; 147th Aero Sq., 1st Pursuit Group. Champagne-Marne Defensive; Aisne-Marne Offensive (Château-Thierry); St. Mihiel Offensive; Meuse-Argonne Offensive.
- NEUMULLER, D. J. (VII) Capt., A. S. 2d Lt., Aviation Sect., Sig. C., Nov. '15; 1st Lt., 3 June '17; Capt., 5 Aug. '17. C. O., Cons. Detachment, Kelly Field, Texas. A. E. F., 1 Mch.—15 Dec. '18; in charge of cons. of Handley Page Aerodrome, Southern England.
- NICKERSON, H. L. (II) Capt., Inf. 1st Lt., 15 Aug. '17; Capt., 28 May '19. 307th Trench Mortar Btry., Camp Gordon, Ga., 15 Aug. '17. A. E. F., 19 May '18—21 July '19; Hq., 6th Army Corps, 3 Sept. '18; Hq., 7th Army Corps, 13 Dec.; Hq., 5th Div., 20 Apr. '19. Disch., 11 Aug. '19.
- NORTON, E. R. (XIII) Comdr., C. C., U. S. N. Entered Navy, '04; Lt. Comdr., 15 Oct. '17; Comdr., 24 Mch. '19. Superintending Constructor, Lake Torpedo Boat Co., Bridgeport, Conn.

REGISTER OF MILITARY RECORDS

- NOWLIN, R. A. (I) 2d Lt., Engrs. Pvt., Inf., 15 May '18; 2d Lt., Engrs., 6 Nov. '18. Camp Sevier, S. C., 15 May '18; F. A. Off. Tr. Sch., Camp Jackson, S. C., 30 May; School moved to Camp Taylor, Ky., 29 June; 4th Engr. Off. Tr. Camp, Camp Lee, Va., 9 Aug.; Camp Humphreys, Va., 10 Aug.; Asst. Personnel Adj., Camp Hq., Camp Humphreys, Va., 6 Nov. '18—17 Jan. '19.
- PARSONS, L. W. (V) Capt., C. W. S. American University Experiment Station, Washington, D. C., Dec. '17—24 Feb. '19; later at M. I. T. Research Laboratory of Applied Chemistry.
- PASHEK, A. L. (VI) entered Service, 31 May. Discharged for physical disability, 10 June '18.
- PAUL, J. N. (VI) 1st Lt., Sig. C. Training, Ft. Niagara, N. Y., Oct. '17; Little Silver, N. J., Jan. '18. A. E. F., 13 Jan. '18; Radio Inst., Organization and Training Center, Training Area No. 3, Clermont-Ferrand, June '18.
- PECK, H. D. (II) Capt., Aviation Sect., Sig. O. R. C. 1st Lt., Aviation Sect., Sig. C., 16 July '17; transferred to A. S., 14 Aug. '18; Capt., Aviation Sect., S. O. R. C., 29 May '19. Training as Equipment Officer, with Royal Flying Corps, Toronto, Can., 15 Aug. '17; later, training as M. T. Officer, M. T. Dept.; 28th Aero Sq., Taliaferro Field, Texas, 31 Oct.; served as M. T. Officer, Taliaferro Field, from 4 Nov. '17 and as Fire Marshal, from 7 May '18, to 26 Mch. '19.
- PIERCE, C. C. (IV) 1st Lt., F. A. Pvt., Off. Tr. Camp, 11 May '17; 2d Lt., Adj. Gen., Dept., 15 Aug.; 1st Lt., F. A., Feb. '18. 1st Off. Tr. Camp, Arty., Ft. Niagara, N. Y., 11 May '17; Asst. to Div. Adj., Hq., 79th Div., Camp Meade, Md., 15 Aug.; Military Intelligence Division, General Staff, Army War College, Washington, D. C., Feb. '18—15 Feb. '19.
- PORTAL, R. T. (VI) 2d Lt., Ord. Corps. Pvt., Ord. Corps., 21 May '17; Sgt., 1 cl., 21 June '18; 2d Lt., 21 Sept. Westfield, Mass., 22 Oct. '17; Camp Green, Charlotte, N. C., 18 Nov.; Camp Hancock, Ga., Apr. '18; Machine Gun School, July; Camp Hancock, Ga., Sept. '18—10 Mch. '19.
- POWERS, SIDNEY (XII) 2d Lt., Engrs. Entered Service, 26 Oct. '17; active service, Ft. Sill, Okla., 11 Jun^e '18; Camp Lee, Va., 1 Aug.; Engr. Off. Tr. Camp, Camp Humphreys, Va., 10 Aug. '18. A. E. F., 26 Oct. '18—22 Feb. '19; Geologic Officer, G. H. Q. See Civilian Record.
- PRATT, E. D. (I) 2d Lt., F. A. Pvt., Off. Tr. Camp, 6 Jan. '18; Line Sgt., F. A., Apr.; 2d Lt., July '18. 3d Off. Tr. Camp, Camp Upton, N. Y., 6 Jan. '18; Btry. F., 306th F. A., 77th Div. A. E. F., July '18—Mch. '19; Arty. School, Saumur; Heavy Arty. School, Angers; in hospital three mos. with spinal meningitis.
- PURDY, W. C. (VII) Lt., U. S. Public Health Service. Extra-cantonment sanitation at Lonoke, Ark., near Eberts Aviation Field, Jan.—Nov. '18; experimental control of mosquito breeding in rice fields, for prevention of malaria.
- QUINN, M. P. (II) Lt., U. S. N., U. S. Destroyer Conner, '18.
- RANKIN, R. S. (VI) Lt. (j. g.), U. S. N. R. F. Called to active duty with Naval Militia of New Jersey, as Electrician 3 cl., N. N. V., 6 Apr. '17; Lt. (j. g.), U. S. N. R. F., 22 Nov. '17. U. S. S. Missouri, Battleship Fleet, Apr. '17; Naval Air Station, Bay Shore, later Ground School, M. I. T., Sept.; Electrical Officer, U. S. S. Seattle, flagship of Cruiser and Transport Force, Dec. '17—Feb. '19. (Ship credited with three submarine attacks.)
- RANNEY, A. G. (I) Capt., C. A. C. Btry. A, 65th Arty., San Diego, Calif., '17; A. E. F., Mch. '18—30 Jan. '19; C. O., 1st Bn., 65th Regt. C. A. C., 19 Oct. '18.
- RAY, A. G. (IV) Observer, Canadian F. A. Pvt., F. A., '17; Signaller; Observer. Canadian F. A., 4th Arty. Div. B. E. F., France, '17; 10th Canadian Siege Btry., McGill Unit, London, England, Mch. '19.
- READ, C. A., JR. (I) reported in A. S.
- REED, M. W. (IV) Sgt., Engrs. Pvt., 8 Sept. '17; Sgt., Engrs., 12 June '18. 302d M. G. Bn., 8 Sept. '17. A. E. F., 25 Sept. '17—24 Jan. '19; Hq. 102d M. G. Bn., 26th Div.; 40th Engrs., 12 June; as "Camouflage Sgt.," attached to various arty. units. Seicheprey; St. Mihiel Offensive; Meuse-Argonne Offensive. (Page 180.)
- REYBURN, T. R. (II) Sea. 1 cl., U. S. N. R. F. Entered Service May '17; Coast Patrol, Newport, R. I.; medical discharge on account of injury to back, 26 Sept. '17. See Civilian Record.
- RICH, A. F. (II) 2d Lt., F. A. Pvt., Inf., 5 Oct. '17; Corp.; Sgt.; 2d Lt., F. A. Entered Service, 31 Aug. '18; Co. C, 362d Inf., 5 Oct. '17. Disch., 20 Dec. '18.
- RICHTER, G. A. (X) Maj., C. W. S. Chief of Pyrotechnic Sect., Research Div., C. W. S., 22 Aug. '18—1 Jan. '19; devising means for employing incendiary shells, signals, gas shells, smoke screens and new explosives. Similar work with C. W. S. as civilian before being commissioned. (Page 258).
- ROE, C. S. (I) Capt., Engrs. Pvt., Engr. Off. Tr. Sch., 2 Sept. '17; 1st Lt., Engrs.; Capt., 2 May '19. 2d Engr. Off. Tr. Sch., Ft. Leavenworth, Kan., 2 Sept. '17; 7th Engrs., 10 Dec.; 2d Bn., Engr. Repl. Troops, 1 Jan. '18; 53d Engrs., 30 Mch. A. E. F., 10 June '18—3 July '19; Tours; Tievres.
- ROGERS, S. E. (II) 2d Lt., Ord. Corps. Pvt., F. A., 4 Oct. '17; 2d Lt., Ord. Corps., 11 July '18. Btry. B, 301st F. A., Camp Devens, Mass., 4 Oct. '17; Ord. M. G. School, Camp Hancock, Ga., May '18. A. E. F., 31 July—2 Feb. '19; Ord. Armament School, St. Jean des Monts (Vendée); Armament Officer, 370th Aero Sq., 2d Corps Aeronautical School, Chatillon-sur-Seine, 2 Oct. '18.
- ROLLASON, G. M. (X) Capt., C. W. S. Canadian E. F., 20 Aug. '17; Pvt., 30th Engrs., U. S. A., 1 Dec. '17; Sgt., C. W. S., 1 Feb. '18; Capt., 1 July '18. A. E. F., July—Nov. '18; Gas Service Hq., London, England; Base Sect. No. 3, S. O. S., France.
- ROSENBERG, L. C. (IV) Sgt., Engrs. Pvt., Engrs. 10 July '17; Corp., July 18; Sgt., Sept. '18. Camouflage Sect., 40th Engrs., 20 Nov. '17. A. E. F., 11 May '18—9 Jan. '19; with 1st, 2d, 3d, 37th, 42d, 77th and 91st Divisions. St. Mihiel Offensive; Meuse-Argonne Offensive; Verdun, Baccarat and Luneville Sectors.

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- ROSS, B. T. (X) 1st Lt., 1st Lt. 1 Jan. '18; Capt., 23 Jan. '18. Off. Tr. Camp, 14 May '17; Btry. A, 330th F. A., A. E. F., 6 Aug. '18—1 Apr. '19.
- RUDOLPH, P. E. (I) Sgt., 1 cl., Q. M. C. Chicago Depot, Q. M. C., 30 June '18.
- ST. JOHN, EVERETT (II) 1st Lt., C. A. C. Pvt., C. A. C., Aug. '17; 1st Lt., 27 Nov. '17. 74th Arty., C. A. C., Fort Du Pont, Del., Aug. '17. A. E. F., Sept.—Dec. '18.
- SCHULZE, ROBERT, JR. (V) Cook, Q. M. C. Pvt., 1 cl., Q. M. C., 15 Aug. '17; Cook, 1 July '18. Supply Co. 309, Camp Johnston, Fla., 11 Dec. '17. A. E. F., France, 6 June '18—17 June '19; Is-sur-Tille.
- SELFRIDGE, J. S. (VI) Capt., Ord. Corps. 1st Lt., Ord. Corps, Nov. '17; Capt., '18. Gunpowder Reservation Hq., Baltimore, Md.
- SELFRIDGE, S. W. (II) 1st Lt., Ord. Corps. Pvt., Off. Tr. Camp, 12 May '17; 2d Lt., F. A. R. C., 23 May; 1st Lt., Ord. R. C., 15 Aug. '17. M. G. School, Springfield Armory, 12 May '17; in charge Small Arms Sect., 302d Mobile Ord. Repair Shop, 77th Div., Camp Upton, N. Y., 15 Aug. '17. A. E. F., 16 Apr. '18—30 Apr. '19. Lorraine Sector; Oise-Aisne Offensive, Vesle to Aisne; Meuse-Argonne Offensive.
- SHEDDEN, J. B. (IV) Instrument Sgt., F. A. 333d Hv. F. A., Camp Grant, Ill., 9 Nov. '17; target practice, Sparta, Wis., May '18; Camp Mills, N. Y., Aug. '18. A. E. F., 7 Sept. '18—19; Arty. School of Fire, Le Courneau, Oct. '18. See Civilian Record.
- SHINKLE, S. D. (V) 1st Lt., C. W. S. Gas Mask Research, C. W. S., 7 Oct. '18—4 Jan. '19. See Civilian Record.
- SMITH, C. A. (III) reported at Off. Tr. Camp, Camp Upton, N. Y.
- SMITH, E. H. (XIV) Lt., U. S. Coast Guard, U. S. N. 3d Lt., U. S. Coast Guard, Feb. '18; 1st Lt., U. S. C. G., U. S. N., Mch. '19. U.S.S. Manning, Jan. '18; Charleston Navy Yard, Mch. '19.
- SMITH, F. T. (XIV) 2d Lt., F. A. Pvt., Off. Tr. Camp, 5 Jan. '18; Sgt., F. A., 28 Mch.; 2d Lt., 12 July '18. 3d Off. Tr. Camp, Camp Upton, N. Y., 5 Jan. '18; Btry. A, 305th F. A., 28 Mch. '18. A. E. F., May '18; Arty. School, Saumur, 30 May; Hv. Arty. School, Angers, 1 Sept.; 57th C. A. C., Oct. '18. Meuse-Argonne Offensive, 29 Oct.—11 Nov. '18.
- SMITH, M. J. (VI) 2d Lt., Engrs. Pvt., Off. Tr. Camp, 8 May '17; 2d Lt., Engrs., 28 June '17. Off. Tr. Camp; 8 May '17; 302d Engrs., 77th Div., Camp Upton, N. Y., 2 Sept. '17. A. E. F., 11 Dec. '17— Mch. '19. Intelligence Sect., General Staff, attached British 3d Army, 17 Jan. '18, later French 1st Army; 29th Engrs., Mch.; C. O., Sound Ranging Sect. No. 2, while at Château-Thierry. Seicheprey; Château-Thierry; St. Mihiel Offensive; Meuse-Argonne Offensive to 2 Oct. '18. Wounded and gassed, 2 Oct. '18. Office of Chief of Engrs., Washington, D. C., Mch. '19, wrote text-book on Sound Ranging for Army Engr. School. Disch., 8 July '19. (Page 277.)
- STARR, G. H. (I) Capt., F. A. Entered Service, 13 July '17; 136th F. A., Camp Sheridan, Ala., Sept. '17; Ft. Sill, Okla., Mch. '18. A. E. F., June '18—Apr. '19. Marbache Sector, Sept.; St. Mihiel Sector; Meuse-Argonne Offensive.
- STERN, FRANCES, Directress-General, Children's Bureau, American Red Cross, Paris. See Civilian Record.
- *STEVENS, W. D. (II). See Roll of Honor (page 121).
- STENHOLM, C. J. (X) Corp., Engrs. Co. A. 312th Engrs., 27 June '18. A. E. F., Aug. '18—Mch. '19.
- STRACHAN, J. J. (I) Lt., C. E. C., U. S. N. Lt. (j. g.), C. E. C., U. S. N., 15 June '17; Lt., 15 Oct. '17. Naval Academy, Annapolis, Md., 15 June '17; Acting Public Works Officer, Navy Yard, Boston, Mass., Aug. '17—21 Oct. '19.
- SUTTER, H. F. (I) 2d Lt., A. S. Entered Service, 15 Jan. '18; Sq. 54, Aviation Barracks, Berkeley, Calif.
- SWAIN, C. D. (II) Lt., U. S. N. Entered Service, '10; Lt. U. S. N., '17. China, 25 Oct. '15—20 Sept. '17; U.S.S. Sigourney, 5 Nov. '17. A. E. F., 25 May '18—6 Jan. '19, with destroyer flotilla based on Brest, France.
- SWEET, H. A. (I) Pvt., F. A. 153d Depot Brig., Camp Dix, Aug. '18; 2d, later 6th Tr. Btry., Hv. Arty., Off. Tr. Sch., Camp Taylor, Ky.
- TAYLOR, E. G. (XIV) 1st Lt., Sn. C. Entered Service, 6 Oct. '17; engaged in X-ray work. A. E. F., 27 Mch. '18—5 July '19; Advanced Med. Supply Depot No. 1 in Nov. '18; Instructor, X-ray Dept., Beaune University.
- TAYLOR, G. A. (II) 2d Lt., Ord. Corps. M. G. Inst. and Repair Officer, 105th Mobile Ord. Repair Shop, 30th (Old Hickory) Div. A. E. F., ten months.
- THIERFELDER, H. C. (I) 1st Lt., C. A. C. Ft. Wetherill, Coast Defense, Narragansett Bay, R. I., 27 Aug. '17. A. E. F., 11 Oct. '18—15 Mch. '19; Hq. Co., 49th Regt., C. A. C.
- THOMAS, R. L. (VI) Capt., Engrs. Pvt., Off. Tr. Camp, 14 May '17; 1st Lt., Engrs. 15 Aug.; Capt., 9 Jan. '18. 1st Off. Tr. Camp, Plattsburg, N. Y., 14 May '17; American University and Belvoir, Va.; 302d Engrs., 77th Div., Camp Upton, 15 Aug. '17. A. E. F., 14 Apr. '18—23 Apr. '19; trained with British behind the lines in Flanders; Company Officer, Bn. and Regt. Adj. Baccarat Sector, 17 June—2 Aug.; Oise-Aisne Offensive (Vesle River Sector). Severely wounded, Chery-Chartreuse, Vesle River Front, 20 Aug. '18.
- TRULL, C. E. (VI) 2d Lt., A. S. Pvt., A. S., 17 Jan. '18; 2d Lt., 23 Mch. '18. School of Military Aeronautics, M. I. T., Jan. '18; 350th Aero Sq., Selfridge Field, Mich., Mch. '18. A. E. F., Aug.—Dec. '18; Asst. Engr. Officer, American Detachment, Hounslow Heath, Middlesex, England.
- VAN DEUSEN, D. H. (II) Capt., F. A. Pvt., Off. Tr. Camp, 12 May '17; 1st Lt., F. A., 15 Aug.; Capt., 26 Apr. '18. 1st Off. Tr. Camp, 12 May '17; 308th F. A., Aug.; Hq. Co., 108th F. A., Camp Hancock, Ga., 5 Sept. '17. A. E. F., 19 May '18—26 May '19. Fismes-Vesle Sector; Oise-Aisne Offensive; Meuse-Argonne Offensive; Ypres-Lys Offensive.

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- VOSE, A. W. (I) Pvt., Engrs. Entered Service, Nov. '17; Co. M, 23d Engrs., Camp Devens, Mass., Jan. '18. A. E. F., before May '18.
- von ROSENBERG, H. J. (IV) 1st Lt., A. S. A. Pvt., Aviation Sect., Sig. C., 21 Aug. '17; 1st Lt., A. S. A. 1st Sq., Ellington Field, Houston, Tex.
- WADSWORTH, E. L. (VI) 2d Lt. M. T. C. Pvt., M. T. C. 11 Dec. '17; Corp., 13 Apr.; Sgt., June; 2d Lt., M. T. C., U. S. R., 3 Mch. '19. M. T. Co. 444, Boston, Mass., 11 Dec. '17.
- WAITE, A. G. (III) Capt., A. S. Pvt. 1 cl. Sig. Enlisted Res. C., 17 Aug. '17; 1st Lt., 21 Dec.; Capt. A. S., 12 Sept. '18. Kelly Field, San Antonio, Tex., 17 Aug. '17; Office of Director Military Aeronautics, Washington, D. C., 8 Sept. '18; Office of Sec. of War, 6 Mch.—29 Sept. '19.
- WALLACE, G. R., JR. (X) Maj., F. A. Pvt., F. A., 19 July '17; Sgt., 27 July; Capt., 29 Nov.; Maj., 11 Jan. '18. 2d Mass. F. A., 19 July '17; Oglethorpe, Ga., 29 Aug.; Btry. F, 11th F. A., Douglas, Ariz., 29 Nov. '17. A. E. F., 4 Aug. '18—19 Apr. '19; 141st F. A., 10 Mch. '19. Meuse-Argonne Offensive. Slightly gassed. Army Citation. (Page 155.)
- WALTERS, L. D. (II) 1st Lt., Engrs. Pvt., Off. Tr. Camp, 13 May '17; 2d Lt., Engrs., 15 Aug.; 1st Lt., 20 Jan. '18. 1st Off. Tr. Camp, Plattsburg, N. Y., 13 May '17; Co. E, 24th Engrs., Aug. '17. A. E. F., 1 Mch. '18—16 Jan. '19; Operated Advance Engr. Supply Dumps; 2d Bn., Hq. 24th Engrs., Toul, Mch. '19. St. Mihiel, Toul, and Meuse-Argonne Sectors.
- WALTON, O. C. (VI) 2d Lt., Aviation Sect., Sig. R. C. Pvt. (Flying Cadet), Aviation Sect., Sig. C., 14 Dec. '17; 2d Lt., Aviation Sect., Sig. R. C. Sq. 40, School of Military Aeronautics, Cornell University, 14 Dec. '17; Flying School, Hazelhurst Field, Mineola, L. I., 6 May '18; Aviation Repair Depot, Speedway, Indianapolis, Ind.
- WARD, M. H. (XIII) 1st Lt., Ord. Corps, 17 Sept. '18. See Civilian Record.
- WARDWELL, A. K. (I) Ensign, U. S. N. R. F. C. B. M., U. S. N. R. F., Nov. '17; Ensign, Mch. '19. 3d Naval District, Nov. '17; Ensign School, Mch. '18.
- WARNER, P. C. (IV) Lt. (j. g.), U. S. N. R. F. (A.). Sea. 2 cl., U. S. N. R. F., 14 Dec. '17; C. Q. M., 1 Jan. '18; Ensign, 7 Mch.; Lt. (j. g.), 1 Oct. '18. Inst., Gunnery and Bombing, Naval Aviation Detachment, M. I. T., received flight training, Key West and Pensacola; Pilot and Aide to Commandant, Naval Air Station, Pensacola, Fla., to date (Aug. '19).
- WATSON, W. N. (V) 1st Lt., C. W. S. 303d F. A., Ft. Monroe, Va., 1 Oct. '17; transferred to Gas Defense Div., C. W. S.
- WEEKS, R. W. (VI) 1st Lt., C. W. S. 2d Lt., Ord., 3 Jan. '18; 1st Lt., C. W. S., 1 Aug. Engineering Bu., Ord. Dept., Edgewood Arsenal, Md., 3 Jan. '18; in charge Stores Sect., with all materials and equipment, Edgewood Arsenal. Disch., 1 May '19.
- WEMPLE, H. R. (X) 1st Lt., C. W. S. 1st Lt., Sn. C., Med. Dept., 15 Aug. '17; transferred to C. W. S., Sept. '18. Supervised mfr. of rubber parts for gas masks, Goodrich, Goodyear, and Miller Rubber Companies' plants, Akron, Ohio, and U. S. Rubber Co., Cleveland, Ohio, Sept. '17—Apr. '18; Gas Defense Div. Laboratories, Long Island City; in charge of one of the protective chemical mfg. plants, Astoria, L. I. Disch., 15 Feb. '19. See Civilian Record.
- WHITE, R. W. (II) Pvt., 1 cl., C. A. C. Pvt., Mass. N. G., 17 Apr. '17; federalized, 25 July '17. Coast Defense of Boston, Mass., 28 July '17. A. E. F., 8 Apr. '18—10 Jan. '19; Btry. B, 55th Regt., C. A. C., Clermont-Ferrand, 11 Apr. '18. 2d Battle of the Marne; Vesle and Aisne Sectors; 10 Aug.—9 Sept.; Verdun Sector. 26 Sept.—14 Oct.; Meuse-Argonne Offensive.
- WHITEHEAD, W. L. (III) 2d Lt., A. S. Pvt. Off. Tr. Camp, 5 Jan. '18; 2d Lt., F. A., Apr.; transferred to A. S., Oct. '18. 3d Off. Tr. Camp, Camp Upton, L. I., 5 Jan. '18; 304th F. A., 77th Div., Apr. '18. A. E. F., '18—'19; 3d F. A., Besançon, Oct.; 3d F. A., 6th Div.; 10th, 25th and 58th Balloon Cos. A. S. Detachment.
- WILLIAMS, F. B. (II) Capt., Ord. Corps. 1st Lt., Ord. Corps., 10 Sept. '17; Capt., July '18. Washington, D. C., Sept. '17; Watertown Arsenal, Nov. '17—July '19; translated French drawings for 9.5" howitzer, adapting and redesigning many parts to speed up mfr., placed contracts and followed up production and assembly.
- WILSON, R. M. (I) 2d Lt., Engrs. Military Mapping, U. S. Geological Survey, Cushman, Ore., July '18. A. E. F., Co. F, 29th Engrs., supervising positions for graves near Buzancy, June '19.
- WOOD, C. H. (I) 1st Lt., A. E. Entered Service, Dec. '17; Btry. C, 303d F. A., Camp Devens, Mass., Jan. '18; Camp Jackson, S. C., May '18.
- WOODS, R. H., JR. (VI) Capt., Ord. R. C. 1st Lt., Ord., 11 Sept. '17; Capt., O. R. C., 17 Feb. '19. Served with "American Ord. Base Depot in France," Washington, D. C., Rock Island Arsenal and at Camp Dodge, Iowa, 11 Sept. '17—1 Apr. '18. A. E. F., 1 Apr. '18—28 Feb. '19; Camp Foocy (Cher), Apr.; Student and Inst., Arty. Matériel School, Is-sur-Tille, 1 May; Inst., Arty. Matériel, Camp Valdahon, Aug.; Arty. Matériel Officer, Ord. Detachment, St. Nazaire and Bordeaux, with trips to Tours and Mehun-sur-Yèvre, 20 Aug. '18.
- WRIGHT, L. E. (XIV) 1st Lt., C. W. S. Research Div., C. W. S., 18 Oct.—4 Dec. '18. See Civilian Record.

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- AHERN, F. L. (I) 1st Lt., Engrs. Commissioned, 15 Aug. '17. 1st Engr. Off. Tr. Camp, Plattsburg, N. Y., 14 May '17; American University, Washington, D. C.; Inst., 2d Engr. Off. Camp, American University, Aug.; Inst., 3d Engr. Off. Tr. Camp, Camp Lee, Va., Oct.; 30th Engrs., Jan. '18. A. E. F., 27 Feb. '18—5 Jan. '19; with 30th Engrs. (Gas and Flame Regt.); Inst. in the offensive use of gas, Gas School, Chaumont, July; returned to Regt. (now 1st Gas Regt.), 10 Oct. Disch., 28 Aug. '19. Somme Defensive, Mch. '18; Meuse-Argonne Offensive.
- ALDRICH, H. R. (III) 1st Lt., General Staff. Statistics Branch, General Staff, Washington, D. C., 8 July '18—8 Mch. '19. See Civilian Record.
- *ALEXANDER, E. P. (I). See Roll of Honor (page 109).
- ANNIN, R. H. (IV) 1st Lt., Ord. Corps. 2d Lt., Ord. Corps, 15 Nov. '17; 1st Lt., 15 Sept. '18. In charge of preparation of plans for building of Ord. Terminal Depots, Raritan, N. J., Curtis Bay, Md., Pig Point, near Norfolk, Va., Pedricktown, N. J., Harrisburg, Pa., Rock Island, Ill., and other points.
- BAIRD, L. S. (II) Capt., A. S. A. 1st Lt., A. S., 15 Aug. '17; Capt., A. S. A., 15 Oct. '18. Commanded Aero Sqs. Nos. 106, 120, 129, 130, 131, 132, 133, 134, 135, 800, 637, 875, Kelly Field, Texas, 15 Aug. '17—29 Oct. '17; left in command of 106th Sq., for Garden City, L. I., N. Y., 27 Oct. A. E. F., 7 Dec. '17—6 Feb. '19; Asst. Airplane Officer, later Officer in Charge, Machine Shops; Asst. Chief, Advance Shops Div., Mechanical Engr. and Electric Installation, 1st Air Depot, Zone of Advance, Colombey-les-Belles, 1 Feb.—24 Dec. '18; Chief, electrical power and light for A. S. in Zone of Advance.
- BARKER, H. W. (IV) 1st Lt., Engrs. 110th Engrs., Ft. Sill, Okla., 30 July '17. A. E. F., 20 Feb. '18—6 Mch. '19; 6th Engrs. until 5 July '18; transferred Engr. School, Langres, July; transferred 317th Engrs., 1st Corps; Member, Engr. Bd., Peace Comm., Paris. Somme Defensive, Mch.—June '18; Champagne-Marne Defensive, (Château-Thierry), with French, June—July '18; Vosges Mts., Aug.—20 Sept.; Meuse-Argonne Offensive, 26 Sept. Gassed in Somme Defensive.
- BARNWELL, G. W. (VI) 1st Lt., C. A. C. 4th Tr. Camp, Ft. Monroe, Va., in Nov. '17; 3d Co., C. A. C., Ft. Screven, Ga., in Apr. '18. A. E. F., Hq., 2d Bn., 75th C. A. C. in Sept. '18.
- BARNS, F. B. (VI) 2d Lt., Engrs. Pvt., Engrs., Nov. '17; Mr. Engr., 15 Feb. '18; 2d Lt., Oct. '18. A. E. F., Mch. '18—Mch. '19; 26th Engrs.
- BARRATT, R. F. (IV) Lt., U. S. N. Sea, 2 cl., 30 Aug. '17; C. Q. M.; Ensign, Feb. '18; Lt. (j. g.), June; Lt. 1 Apr. '19. A. E. F., France, May—Sept. '18; England, Sept.—Dec. Transatlantic Base Ship Newfoundland, England, May—June '19; organized Aerographic Service for Naval Aviation Weather Forecaster, U. S. Naval Air Station, Paimboeuf, France, Sr. Officer after July '18; located Observatories at L'Alieir Vrach, St. Inglevert and Roche's Point; in charge of weather reporting for Transatlantic Flight; directed first upper air explorations between North America and England; made first known use of upper air wind changes in local forecast work, at Trepassy Bay, Newfoundland. Fellow of the Royal Meteorological Society.
- BATES, R. D. (XI) Sn. Inspector, Amer. Red Cross. Sn. Comm. to Serbia, and Greece, May '15—Apr. '16. See Civilian Record and page 292.
- *BEACH, G. A. (II). See Roll of Honor (page 99).
- BEARD, G. H. (I) Sgt., Engrs. (Cons.). Sgt., Co. A, 33d Engrs., 2 Mch. '18; Sgt. of 1st Bn. Hq., 1 Dec. '18. A. E. F., 10 May '18—2 June '19; Intermediate Sect., S. O. S.; graded Ry. Yard, Nevers; erected Classification Camp and Warehouses, St. Amand, Cher; road repair work at Luzu, Nievre, Jan.—Feb. '19; closing Hospital Area in Vichy, Mch.—Apr.
- BEAUDETTE, J. B. (VI) Ensign, U. S. N. (T.). Commissioned, 8 June '18. Electrical Officer, U.S.S. Columbia, on convoy duty between New York and Brest.
- BORDEN, H. G. (I) Capt., Engrs. 2d Lt., 29 Nov. '16; Capt., Apr. '17. Adj., 1st Bn., 30th Engrs., later C. O. of 2d Bn., Oct. '17; Camp Humphreys, Va., June '18—5 Dec. '18; Co. Comdr. of two companies; Auditor of the Regimental Exchange; Pres. of the Exchange Council and Camp Survey Officer, investigating losses and damage of equipment.
- BOWLER, E. W. (XI) 1st Lt., Engrs. Candidate, Plattsburg, Tr. Camp, 7 May '17; 2d Lt., Engr., 16 June; 1st Lt., 25 June '18. In command Mounted Sect., Co. F, 3d Engrs., Canal Zone, 1 Sept. '17; Chief of Party, Military Survey of Panama, 1 Dec. '17; Topographic Inspector, Military Survey of Panama, 1 Mch. '18; Acting Comdr., U. S. Troops during occupation of City of Panama, July; Adj., 3d Engrs., Sept.; Camp Humphreys, Va., for duty with 3d Engr. Training Regt., 1 Nov. '18—7 Jan. '19.
- BRAFF, M. M. (V) Lt., M. C., U. S. N. Entered U. S. N. R. F., 7 Apr. '17; Lt. (j. g.), M. C., U. S. N., 1 June; Lt. 1 Feb. '18. Naval Hospital, Portsmouth, N. H., 20 May '17; Naval Hospital, Chelsea, Mass., 1 June; Medical Officer, U.S.S. Leviathan, 1 Oct. '17; Medical Officer, U.S.S. Sierra, Aug. '18; at Washington, D. C., taking special course in gas defense and treatment of gassed cases, Nov; later, assigned U. S. Naval Medical Supply Dep., New York City; with U. S. Marines, Santo Domingo, D. R., 20 May '19 to date (Sept. '19).
- BRISTOW, J. J. R. (X) Capt., C. W. S. 1st Lt., 15 Feb. '18; Capt., 30 Sept. Assisted in organizing Govt. laboratory for development of mechanical and chemical side of gas masks; final form of gas mask developed in this laboratory.
- BROGA, W. C. (XIV) Yeoman, 2 cl., U. S. N. R. F. Fore River Ship Yard, Quincy, Mass., 8 June '18; injured in line of duty and given a Medical Discharge.
- BROWNE, A. P. (III) Capt., Marine Corps. 2d Lt., 5 July '17; 1st Lt., 1 July '18; Capt., 2 July. Quantico; Va., 1 Aug. '17; Puget Sound, Wash., 11 Nov.; Mare Island, Calif., 5 Apr. '18—1 Sept. '19.

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*BRYANT, C. D. (XI) See Roll of Honor (page 107).

BURNHAM, L. W. (VI) Capt., Marine Corps. 1st Lt., 16 Aug. '17; Capt., 1 July '18. Entered Service, May '17, Off. Tr. Sch., Quantico, Va., June '17; 1st Regt., Navy Yard, Philadelphia, Pa., Nov. A. E. F., Aug.—Dec. '18, with 88th Co., Searchlight Bn., 1st Regt., Advanced Base Force, temporarily attached to North Bombing Sq., Naval Air Forces. Marine Barracks, Navy Yard, Philadelphia, Pa., to date (Dec. '19).

BURNS, C. H. (X) 2d Lt., C. W. S., 9 Aug. '18. A. E. F., unattached, Aug.—Dec. '18. See Civilian Record.

BURROWS, G. H., reported at 4th Off. Tr. Camp, Camp Devens, Mass.

BUSBY, H. S. (XIII) 1st Lt., Ord. Corps. Candidate, 2d Plattsburg Tr. Camp, 23 Aug. '17; 1st Lt., Ord. Corps, 23 Nov. Inst. in camouflage and camouflage cons., 2d Plattsburg Tr. Camp; in charge tests to develop standard designs for fire control instruments for arty., Office of Chief of Ord., Engr. Div. A. E. F., 7 Oct. '18—10 June '19; tested various types of fire control material; reported to General Staff on types for post-war adoption by Army; equipped heavy and railway artillery units with this material.

CALLAHAN, C. J. (XI) Ensign, U. S. N. R. F. (A.). Sea. 2cl., U. S. N. R. F., 4 May '18; C. Q. M.; Ensign-M. I. T. for seven weeks' course; Office of Constructor of Aircraft, Buffalo, N. Y., in charge of govt. contracts for seaplanes and flying boats. See Civilian Record.

CALVER, H. N. (XI) Capt., Sn. C. 1st Lt., 7 Nov. '17; Capt., 8 Apr. '19. Asst. to Camp Sn. Inspector, Camp Funston, Kan., 20 Nov. '17; Mobile Field Laboratory, 89th Div., 30 Apr. '18. A. E. F., 28 June '18—5 July '19; with field laboratory; A. E. F. University, 30 Apr. '19. St. Mihiel Offensive; Meuse-Argonne Offensive.

*CHADWICK, J. B. (II). See Roll of Honor (page 111).

CHAMBERS, G. J. (I) Candidate, Engr. Off. Tr. Camp. Pvt. 472d Engrs., 5 June '18; Candidate, Engr. Off. Tr. Sch. Camp Humphreys, Va., 1 Oct.—27 Nov. '18.

CHANDLER, A. D., JR. (II) 1st Lt., Engrs. Commissioned 26 Oct. '17. A. E. F., 25 Dec. '17—10 June '19 with 21st Engrs. (Lt. Ry.). Bois-de-Hazelle, 19-21 June '18; St. Mihiel Offensive, 12-16 Sept.; Meuse-Argonne Offensive, 1 Oct.—11 Nov. Regimental Citation.

CHATFIELD, C. H. (I) Lt. (j. g.), U. S. N. R. F. Sea. 2cl., U. S. N. R. F., Class 5, 15 Dec. '17; C. Q. M. (A.), 8 Jan. '18; Ensign, 25 Mch.; transferred to C. C., U. S. N. R. F., Class 4, 1 July '19; Lt. (j. g.), U. S. N. R. F., 11 Aug. See Civilian Record.

CHURCHILL, J. S. (X) 1st Lt., Ord. Corps.

COFFIN, SCHUYLER (III) 1st Lt., Aviation Sect., Sig. C. A. E. F., 3d Aviation Instruction Center, in June '18.

COHEN, HAROLD (XIV) 1st Lt., A. S. A. Pvt. 1 cl., 15 June '17; 1st Lt., A. S. A., 21 Dec. 6th Sq., Ground School, M. I. T., 15 June '17. A. E. F., Feb. '18—Feb. '19; training at Issoudun; Staff Pilot, Observers School, Tours, 85th Aero Sq., Hill 402, Oct., Toul Airdrome, 1 Nov.—Jan. '19.

COLLINS, A. E. G. (III) Capt., Royal Engrs. (British). Off. Tr. Camp, (Cavalry), Mch. '15; 2d Lt., Royal Engrs., 22 July; 1st Lt., 1 June '16; Capt., 1 May '18. 461 Field Co., Royal Engrs., 22 July '15. B. E. F., end of '16-22 Apr. '19. 2d Battle of Somme; Battle of Ancre River; Battle of Bullecourt; 1st Battle of Cambrai, '17; 2d Battle of the Marne, '18; entire advance in the Somme Region, 8 Aug.—11 Nov., reaching Maubeuge, 9 Nov. '18. Awarded Military Cross and cited in Despatches (British). Page 146.

COMBER, T. F., JR. (I) 2d Lt., Engrs. Pvt., Engrs., 8 Oct. '17; Corp., 1 May '18; 2d Lt., 28 Sept., 29th Engrs., 8 Oct. '17. A. E. F., 31 Oct. '17—2 Feb. '19; with 3d Army Corps, after 1 May '18. Aisne-Marne Offensive (Château-Thierry); Meuse-Argonne Offensive.

CROCKER, E. C. (XIV) Corp., C. W. S. In Washington, D. C., on problems of gas defense from 29 Apr. '18.

CROWELL, D. G. (X) 1st Lt., F. A., attached M. P. 2d Lt., 5 Sept. '17; 1st Lt., 26 Oct. 301st F. A.; 59th C. A. C.; 109th Inf.; 297th M. P. Co. A. E. F., 30 July '18—6 July '19. Toul Sector.

CUNNINGHAM, R. J. (I) Corp., Sig. C. Pvt., Sig. C., 20 May '18; Corp., Mch. '19. Casual with 13th Service Co., 20 May '18. A. E. F., 13 Sept. '18—1 Aug. '19; 116 Field Sig. Bn., 15 Sept. '18; 43 Service Co., 30 Sept.; 44th Service Co., 17 Dec. '18.

CURRIER, J. H. (II) Lt., U. S. N. Ensign, U. S. N., 26 May '17; Lt. (j. g.), 15 Oct. '17; Lt., 1 July '18. Asst. Engr. Officer, U. S. S. Arizona, 6 July '17—1 June '18. A. E. F., 5 July—26 Dec. '18; Asst. Engr. Officer, U. S. S. Wyoming, with Grand Fleet, at Scapa Flow and Firth of Forth; escort for U. S. mine layers; present at surrender of German fleet, 21 Nov. '18. Still in Navy (Aug. '19).

CURRIER, L. W. (III) Pvt., A. S. Entered Service, Aug. '18. Aerial Photography Sect. Elementary and Advanced Training Schools, Military Aeronautics, Aerial Photography Sect. See Civilian Record.

CURRIER, P. M. (VI) 2d Lt., Sig. R. C. Pvt., Radio Off. Tr. Camp, 22 May '18; 2d Lt., Sig. R. C. 29th Service Co., Camp Vail, N. J., 22 May '18; Radio Research Laboratory, Radio Off. Tr. Sch., 1 Oct.—18 Dec. '18. See Civilian Record.

DAVIS, C. P. (X) Sgt., C. W. S. Pvt., Mass. Inf., 18 Oct. '17; Corp., 31 Oct.; Sgt., C. W. S., 31 Oct. '18; transferred to C. W. S., 27 Dec. '17. Gas Defense Div., C. W. S., 25 Oct. '18—9 Jan. '19.

DAWSON, E. E., JR. (II) Maj., Ord. Corps. 1st Lt., 7 Aug. '17; Capt., June '18; Maj., Feb. '19. Machine Gun Sect., Carriage Div., Ord. Dept., 7 Aug. '17. A. E. F., June '18—June '19. In charge of 37 mm. canon and aircraft bombs. Citation from G. H. Q.

DELAMATER, H. I. (II) Pvt., F. A. Pvt., Bliss Electrical School, Washington, D. C., 14 June '18; Topography School, Btry. B, 10th Regt., F. A. Repl. Dep., Camp Jackson, S. C., 13 Aug.; F. A. Brig. Firing Center, Camp Jackson, S. C., 16 Dec.—29 Jan. '19.

TECHNOLOGY'S WAR RECORD

- DERRY, G. C. (VI) Ensign, U. S. N. U. S. Naval Academy, June—Sept. '18; Engr. Officer, U.S.S. Great Northern, in transport service, Sept. '18—Mch. '19. Inspector of engr. material and supervision of trial trips of Ford Eagles, Ford Shipbuilding Plant, Detroit, Mich., Mch.—May '19.
- DES GRANGES, DONALD (IV) 1st Lt., Engrs. Bn. Sgt. Maj., 6 June '17; Regt. Sgt. Maj., 18 July; Mr. Engr. (jr. gr.), 15 Nov.; 1st Lt., 30 Mch. '18. 17th Engrs. (Ry.), 6 June '17. A. E. F., 28 July '17—3 Jan. '19; Architectural work at St. Nazaire; Office of General Purchasing Agent, Paris, July '18—3 Jan. '19.
- DICKINSON, THORN (I) 1st Lt., Engrs. Candidate, Off. Tr. Camp, 13 May '17; 2d Lt., Engr. R. C., 15 Aug.; 1st Lt., Engrs., N. A., 5 Apr. '18. 1st Off. Tr. Camp, Plattsburg, N. Y., 13 May '17; Officer in Charge, Engr. Sub-Depot, Camp Greene, N. C., 8 Sept.; Engr. Liaison Officer, Army Reserve Depot, Schenectady, N. Y., 24 Aug. '18—5 July '19.
- DICKSON, R. H. (X) Capt., Ord. Corps. 1st Lt., 24 Dec. '17; Capt., 8 July '19. Toluol Unit, Explosives Sect., Ord. Dept., 24 Dec. '17; worked for development of supply of toluol for T. N. T., necessitating the building of thirty tonol recovery plants in U. S. from Seattle, Wash. to New Orleans, La. and Boston, Mass.; in charge of inspection of materials and cons. work on all plants built by the Ord. Dept.; in complete charge of and accountable for all Toluol plant property. See Civilian Record.
- DIXON, DONALD (XI) 1st Lt., C. A. C. Candidate, Off. Tr. Camp, 25 Aug. '17; 2d Lt., C. A. C., 27 Nov.; 1st Lt., 17 Oct. '18. 2d Off. Tr. Camp, Plattsburg, N. Y., 25 Aug. '17. A. E. F., 12 Dec. '17—30 Jan. '19; Tractor Arty. School, Vincennes, Feb. '18; Adj., Tractor Arty. School, La Bâte near Dourdan, Mch.; Tractor Depot, Bristol, England, Sept.; Sec. Tractor Arty. School, Gien, France, Oct.; in command, Tractor Arty. Sch. Repl. Detachment, Jan. '19.
- DOREMUS, R. C. (II) 1st Lt., Ord. Corps. Production Div., Detroit Dist. Office, Ord. Dept., 9 Nov. '17; Stationed at Detroit Plant of the American Car and Foundry Co.
- DORRANCE, A. C. (X) Maj., C. A. R. C. Candidate, Off. Tr. Camp, 15 May '17; 1st Lt., C. A. C., 15 Aug.; Capt., 27 Nov.; Maj., C. A. R. C., Jan. '19. 1st Off. Tr. Camp, Ft. Myer, Va., 15 May '17; transferred Ft. Monroe, Va., for training in Hv. Arty., 15 June; Inst., 2d Off. Tr. Camp, Ft. Snelling, Minn., 15 Aug.; Inst. in Gunnery, and Co. Comdr., H. A. Tr. Camp, Ft. Monroe, Va., Oct. '17—Sept. '18; Disch., Dec. '18.
- DOUD, C. E. (II) 1st Lt., Ord. Corps. Camp Meade, Md., in Dec. '17; 2d Prov. Co., American Ord. Base Depot in France, Camp Jackson, S. C., in Feb. '18. A. E. F.; 2d Army. Base Hosp., Ft. Sheridan, Ill., in Mch. '19.
- DOWNING, L. L. (II) 2d Lt., Army Transport Service. Pvt., Q. M. C., 26 Nov. '17; 2d Lt., Army Transport Service, 8 June '18. A. E. F., 18 June '18—17 Jan. '19; Prov. Motorcycle Co. No. 1, continuous service in war zone.
- DUFF, L. B. (I) Capt., C. W. S. 1st Lt., Gas Defense Service, 3 Oct. '17; Capt., C. W. S., 18 July '18. In charge of development and mfr. of the oxygen inhalator apparatus for the treatment of men overcome by poisonous gas, and development and mfr. of gas warning signals; with Lt.-Col. Dreyer, Royal Army Medical Corps (British Army), worked on quantity production of the Dreyer Apparatus for High Altitude Flying until 28 Feb. '19.
- DUFFIELD, T. J. (XI) Maj., Sn. C. 1st Lt., 11 Sept. '17; Capt., 2 Mch. '18; Maj., 3 May '19. Camp Surgeon's Office, Camp Lee, Va., 11 Sept. '17; in command Camp Sn. Sqd. No. 83, 8th Div., Camp Fremont, Calif., 31 Aug. '18. A. E. F., 6 Oct. '18—23 May '19; Chief of the Div. of Epidemiology and Sanitation, Chief Surgeon's Office, Hq. S. O. S., Tours.
- EBERHARD, W. C. (I) Ensign, U. S. N. R. F. (A.). C. Q. M., U. S. N. R. F. (A.), 12 Apr. '18; Ensign, 25 Oct. '18. Naval Aviation Detachment, M. I. T., Apr.—May '18; Curtiss Aeroplane Co., Buffalo, N. Y., June; Inspector, Burgess Aeroplane Co., Marblehead, Mass., 24 July; Naval Aircraft Factory, Philadelphia, Pa., 6 Jan.—30 Jan. '19.
- EDELSTEIN, J. E. (VI) 2d Lt., Sig. C. Pvt., May '18; Sgt., July '18; 2d Lt., Dec. '18. Worked on development of wireless telephone and telegraph communication between airplanes.
- EKSERGIAN, RUPEN (VI) Capt., Ord. Corps. Entered Service, Sept. '17; Corp., Engrs.; 1st Lt., Jan. '18; transferred to Ord. Corps.; Capt., Oct. '18. In charge of calculations, Mobile Gun Carriage Sect., Arty. Div., Ord. Dept.
- EVERSON, K. B. (VI) Capt., Inf. Entered Service, 26 Mch. '17; 1st Lt. Inf., 17 May '17; Capt., 5 Aug. '17. Port of Embarkation, Hoboken, N. J., 26 Mch. '17; 58th Inf., 10th M. G. Bn., 11th M. G. Bn. A. E. F., 18 May '18—10 Jan. '19; 4th Inf.; 1st Prisoner of War Escort Co. Champagne-Marne Defensive, 14-18 July; Aisne-Marne Offensive, 18-28 July.
- FAY, H. V. (IX) Capt. (T.), Engrs., 2d Lt., 19 Oct. '17; 1st Lt., Feb. '18; Capt. (T.), May '18. Prov. Off. Tr. Camp, Ft. Leavenworth, Kan., 19 Oct. '17; 319th Engrs.; Aide-de-Camp to Commanding General, 8th Div., Jan.—June '18; transferred Military Intelligence Branch, General Staff, Washington, D. C., July—Aug. '18. A. E. F.; Intelligence Officer, Harbin, Siberia; Chief Engr. Officer, C. O. Engr. Detachment, Chief Morale Officer, Ex. Officer of Intelligence Dept., Vladivostok, since Sept. '18. (Jan. '20).
- FISH, J. P. (VI) 2d Lt., Marine Corps. Pvt., 26 June '18; 2d Lt., 26 Aug. Sig. Bn., Philadelphia Navy Yard; 26 June '18; Searchlight Bn., 26 Aug.; 22d Co., 1st Regt., on patrol duty in Oriente Prov., Cuba, 3 Nov., in active duty in Fleet Marine Corps Reserve, 1 Feb. '19. See Civilian Record.
- FISKE, C. P. (II) 1st Lt., Ord. Corps. Commissioned 19 Sept. '17. In Washington, D. C., organized Blue Print Photostat and Duplicating Section for Ord. Dept.; transferred to Planning Sect., Engr. Div.; Chief, Auxiliary Sect. of Adm. Div.; Member, Comm. to Rate Mechanical Draftsmen, Draftsmen Efficiency Bd., Comm. on Records; for three weeks Proof Officer, Aberdeen Proving Grounds. (Page 265.)

REGISTER OF MILITARY RECORDS

- FORBES, L. T. (VI) Lt. (j. g.), U. S. N. Ensign, 10 June '18; Lt. (j. g.), 1 July '19. U. S. Naval Academy, Annapolis, Md., 10 June '18; Transport Service, New York to Liverpool, Eng., and Brest, France, on U.S.S. Harrisburg, 4 Oct. '18—25 Sept. '19.
- FOX, C. E. (XI) 1st Lt., Sn. C. Amer. Red Cross Sn. Comm. to Serbia, 12 May '15; Austrian occupied territory, Jan.—Dec. '16; ordered to Balkan Front (Saloniki), Jan. '17—Jan. '18; transferred to France and commissioned in Sn. C. 27 Mch. '18. A. E. F., 2 Mch. '18—11 June '19; Office of Chief Surgeon, Casual Officers' Depot, Blois; Member, American Peace Comm., Coolidge Mission to Enemy Countries for gathering political, economic, and industrial information for Peace Conference; Member, U. S. Food Adm. Mission to Southeastern Europe. Received two Serbian Decorations. (Page 292.)
- GALLEN, V. J. (I) 1st Lt., Engrs. Pvt., Depot Brig., 4 Oct. '17; Candidate, Engr. Off. Tr. Camp, 1 Jan. '18; 2d Lt., Engrs., 10 Apr.; 1st Lt., Sept. Depot. Brig., Camp Devens, Mass., 4 Oct. '17; 301st Engrs., 15 Oct.; Candidate, Engr. Off. Tr. Camp, Camp Lee, Va., 1 Jan. '18; Inst. Engr. Off. Tr. Camp, 1 Apr.; Inst., Engr. Off. Tr. Camp, Camp Humphreys, Va., Sept.; C. O., Casual Co., 5th Engr. Tr. Regt., Camp Humphreys, Va., 15 Dec. '18—2 Jan. '19.
- GARDNER, H. L. (XIII) Enlisted in Engrs., at Camp Devens, Mass., but discharged in two weeks on account of defective vision. See Civilian Record.
- GAZARIAN, H. T. (II) C. M. M., U. S. N. R. F., 11 Sept. '18—20 Dec. '18. See Civilian Record.
- GILBERT, F. P. (XI) 2d Lt., Sn. C. Tr. Camp, Ft. Oglethorpe, Ga., 30 Aug. '18; Camp Sn. Engr., Camp Grant, Ill., 25 Oct. '18—19 Apr. '19.
- *GREENOUGH, G. B. (X). See Roll of Honor (page 117).
- GREENWOOD, L. J. (II) Pvt., Ord. Corps. Co. D, 2d Bn., Edgewood Arsenal, Edgewood, Md., in Jan. '19.
- HAHN, A. J. (VI) Capt., C. A. C. 1st Lt., C. A. C., 7 Aug. '17; Capt., 1 Mch. '18. Inst., and on regular garrison duty; assigned 16th Anti-Aircraft Sector, ordered overseas, armistice intervened. U. S., 7 Aug. '17—21 Dec. '18.
- HALL, H. H. (II) 1st Lt., Ord. Corps. 2d Lt., 17 Jan. '18; 1st Lt., 3 Sept. Liaison Officer, Planning Sect., Engr. Div., Ord. Dept., Washington, D. C., charged with collection of tabulated and descriptive material and photographs pertaining to all ordnance matériel for the Handbook of the Chief of Ordnance, 17 Jan. '18—14 Dec. '19.
- HALL, L. S. (II) Ensign, U. S. N. R. F. (A.). C. Q. M., U. S. N. R. F. (A.), 16 Apr. '18; Ensign, 20 Dec. Naval Aviation Detachment, M. I. T.; Supt. Constructor of Aircraft for U. S. N., Buffalo, N. Y., 10 July—21 Dec. '18. Inactive duty, 22 Jan. '19.
- HAMMOND, A. S. (VI) 2d Lt., Engrs. Pvt., F. A., 5 Sept. '17; Sgt., 4 Oct.; transferred to Engrs., 8 May '18; 2d Lt., 17 June. Btry. F, 341st F. A., Camp Funston, Kan., 5 Sept. '17; Camp Lee, Va., 8 May '18; course in Forestry School, University of Wisconsin, 4 July; returned to Camp Lee, Aug.; Engrs. School, Camp Humphreys, Va., 10 Aug.; Engr. Depot, Washington, D. C., Sept.; Packing Service, Engrs., General Staff, Oct.—14 Dec. '18.
- HARDING, G. W. (II) Ensign, U. S. N. R. F. (E.). M. M. 1cl., U. S. N. R. F., 29 July '17; C. M. M., 1 May '18; Ensign, (E.), 24 Sept. Tr. Regt., Cloynefield Barracks, 29 July '17, for six weeks; Material Sect., Machine Shop, Newport, R. I., six weeks; Experimental Station, Machine Shops, New London, Conn., two months. Experimental Station, Public Works Dept., four months; Naval Dist. Base, New London, six months; U. S. Naval Academy, Annapolis, Md., four months. Inactive list, 6 Feb. '19.
- HARDY, R. E. (I) Pvt., Engrs. 6th Prov. M. G. Co., 10 May '18. A. E. F., Aug.—Dec. '18; Co. N. 116th Engrs., St. Aignan, France.
- HARLOW, HAMILTON (IV) Sgt., Inf. 11th Co., 3d Bn., 151st Depot Brig., Camp Devens, Mass., 29 Mch.—4 Dec. '18.
- HARLOW, H. L. (II) Corp., Inf. Pvt., Inf., 27 May '18; Corp., 3 Aug. Co. 2, 1st Bn., 153d Depot Brig., Camp Dix, N. J., 27 May '18—15 Feb. '19.
- HARRISON, MATTHEW (VI) 2d Lt., A. S. A. Pvt., Inf., 19 Sept. '17; transferred to A. S., Nov.; 2d Lt., A. S. A., 29 Mch. '18. Co. L, 318th Inf., Camp Lee, Va., 10 Sept. '17; Camp Taliaferro, Ft. Worth, Texas, Nov.; School of Military Aeronautics, M. I. T. Disch., 21 Oct. '19.
- HAUSER, W. G. (VI) Bn. Sgt. Maj., F. A. 302d F. A., 25 Aug. '17. A. E. F., 14 July '18—1 May '19. Meuse-Argonne Offensive.
- HAYWARD, E. D. (I) Capt., Sn. C. Pvt., Sn. C., 5 July '17; Sgt., Med. Corps, 10 Aug.; 1st Lt., Sn. C., 7 Jan. '18; Capt., 4 Nov. Supt. of cons. of Contagious Disease Hospital, Sn. Engr. Div., Med. Dept. at Ft. McDowell, Calif., 5 July '17; Surgeon-General's Office, Washington, D. C., doing research work on eradication of mosquito for malaria control in army camps, 7 Jan. '18; Camp Sn. Engr., Camp Fremont, Calif., 4 Apr.—15 Dec. '18.
- HILLER, A. D. (VII) Lt., Sn. C. Pvt., Inf., 5 Oct. '17; Sgt., Mch. '18; Lt., Sn. C., 4 Sept.; Port of Embarkation, Newport News, Va., 5 Oct. '17—15 Aug. '19.
- HINES, J. W. (VI) Ensign, U. S. N. R. F. (A.). Electrician 3cl., 6 Apr. '17; Ensign, U. S. N. R. F. (A.), 1 Feb. '18. U.S.S. Missouri, with Atlantic Fleet, 6 Apr. '17; Naval Air Station, Bay Shore, L. I., Aug.; Naval Aviation Detachment, M. I. T., Sept.; Naval Air Station, Pensacola, Fla., Dec. '17. A. E. F., Feb. '18—Jan. '19; course in Machine Gunnery and Bomb Dropping, U. S. Naval Air Station, Montchic, Gironde, France; convoy work and submarine patrol over North Sea, Air Station, Killingholme, England, May; co-operating with British Grand Fleet, Royal Seaplane Station, Dundee, Scotland, Oct.—Nov. '18. Naval Air Station, Chatham, Mass., Jan.—May '19.

TECHNOLOGY'S WAR RECORD

- HUGHES, W. C. (I) Sgt., Inf. Pvt., Inf., 4 July '18; Corp., 12 Oct.; Sgt., 21 Nov. M. G. Co., 1st Hawaiian Inf., 4 July '18—5 June '19.
- IRELAND, G. M. (VI) reported in British Army.
- ISAACS, JAMES (X) 1st Lt., Engrs. 2d Lt., Engr. R. C., 3 Sept. '17; 1st Lt., Engrs., 1 Oct. '18. Engr. Tr. Camp, 3 Sept. '17; 305th Engrs., 10 Dec.; 3d Engrs., 29 Jan. '18—22 Jan. '19.
- JOHNSON, A. W. (II) Ensign U. S. N. (T.). Sea. 2cl., U. S. N. R. F., 10 Apr. '18; Ensign, U. S. N. R. F., 7 June '18; Ensign (T.), U. S. N., 18 Sept. '18. Hingham Training Station, Wakefield Rifle Range, Bumkin Island; Naval Academy, Annapolis, Md., June; Submarine Base, New London.
- KARNS, F. P. (II) Capt., Engrs. 2d Lt., Engrs., O. R. C., 2 June '17; 1st Lt., Engrs., N. A., 2 Mch. '18; Capt. Engrs., 13 Oct. '18. A. E. F., 9 July '17—27 Apr. '19; Co. C, 15th Engrs.; in charge of grading and laying normal gauge track, Intermediate Ord. Depot No. 4, Mehan, Cher, 6 Sept. '17; Hq. 1st Bn., 15th Engrs., Advance Ord. Depot No. 4, 17 Nov.; Hq. 1st Bn., 15th Engrs., 1st Army, 24 Aug. '18; Act. Adj. Prov. Bn., Sept.; C. O., Co. F, 15th Engrs., 21 Oct.; engaged in reconstruction of track from Verdun to Conflans, and Verdun-Sedan line, after armistice. St. Mihiel Offensive, 12-16 Sept., Meuse-Argonne offensive, 26 Sept.—11 Nov. '18.
- *KELLY, J. G., JR. (I). See Roll of Honor (page 128).
- KEY, EDAMUND, JR. (II) 1st Lt., Inf. Candidate, Off. Tr. Camp, Camp Funston, Texas, in Oct. '17; Co. D, 312th Ammunition Train, Little Rock, Ark., in Mch. '18; Hq. Motor Bn., 312th Ammunition Tr.
- LEATHERS, W. H. (II) 1st Lt., Ord. Corps, commissioned 16 June '17. Transportation and Equipment Officer, Supply Div., Ord. Dept.; Raritan Arsenal, N. J., Jan. '18—Apr. '19.
- LESLIE, F. H. (II) 2d Lt., A. S. Pvt. 1 cl., Aviation Sect., Sig. R. C., 8 Dec. '17; 2d Lt., A. S., 5 Apr. '18. School of Military Aeronautics, M. I. T. A. E. F., England, 15 Aug.—11 Dec. '18.
- LEWIS, M. B., JR. (VI) Pvt., Engrs. 14th Engrs., 21 May '17. A. E. F., 28 July '17—18 July '19; Intelligence Sect., 1st Army Hq., 5 Aug. '18. Cambrai Offensive, Nov. '17; Somme Defensive; Aisne-Marne Offensive (Château-Thierry); St. Mihiel Offensive; Meuse-Argonne Offensive.
- LINNELL, R. M. (XIV) Cadet, A. S. Pvt., Sig. C., 12 Dec. '17; Cadet A. S. Training in military aeronautics in New York, New Jersey, Texas, and Tennessee.
- LONG, A. G., JR. (I) Capt., Ord. Corps. 1st Lt., 29 Aug. '17; Capt., 30 Oct. '18. Ord. Training School, Kenosha, Wis., 29 Aug. '17; Office of Tank, Tractor and Trailer Div., Ord. Dept., at Holt Manufacturing Co., Peoria, Ill., working on design, test and development of 10-, 15-, and 20-ton caterpillar arty. tractors, 6 Sept. '17; Chief of Tractor Sect., Tank, Tractor and Trailer Div., Ord. Dept., Washington, D. C., 9 Apr.—18 Aug. '19.
- LUCAS, W. E., JR. (II) Capt., Inf. 2d Lt., Inf., 30 Nov. '16; 1st Lt., May '17; Capt., 12 Oct. '17. Army Service School, Ft. Leavenworth, Kan., 1 Jan. '17; Co. I, 24th Inf., Columbus, New Mexico, and with 18th Inf., Douglas, Ariz., Apr.—May '17. A. E. F., 14 June '17—1 May '19; attended Staff School, Langres; with 18th Inf., 1st Div., throughout service in A. E. F., transferred to Military Intelligence Section, General Staff; assigned as Asst. Military Attaché to Roumania, 1 May '19; Military Observer with Roumanian Army of Transylvania on Hungarian-Bolshevik front, in operations in Hungary, and Occupation of Budapest, 20 May—20 Sept. '19. Cantigny Sector; Aisne-Marne Offensive (Soissons); St. Mihiel Offensive; Meuse-Argonne Offensive. Gassed, May '18. Croix de Guerre; Citations from Army, Corps and Division. (Pages 149 and 179.)
- MacCART, R. D. (II) Lt. (j. g.), C. C., U. S. N. R. F. Sea. 2cl., U. S. N. R. F. (A.), 10 Dec. '17; C. Q. M., 15 Jan. '18; Ensign, 28 Mch.; Lt. (j. g.), 10 Aug. '19. Naval Aviation Detachment, M. I. T., 10 Dec. '17; Navy Inspectors' School, Curtiss Aeroplane and Motor Corp., Buffalo, N. Y.; Inspector Naval Aircraft, HS2-L flying boats, plant of Standard Aircraft Corp., Elizabeth, N. J.; Army School of Aeronautic Engr., M. I. T.; Mechanical and Aero Engr., Bu. of Cons. and Repair (A.), Navy Dept., Washington, D. C., to date (Nov. '19).
- McENARY, D. R. (IV) Pvt., F. A. 48th Training Btry., F. A. Cent. Off. Tr. Sch., Camp Taylor, Ky., 27 Oct. '18. See Civilian Record.
- McFARLIN, C. K. (I) Lt. (j. g.), U. S. N. R. F. (A.). Sea 2cl., U. S. N. R. F., 26 Dec. '17; Ensign, 28 Apr. '18; Lt. (j. g.), 1 Oct. '18. Trained at Blue Hill Observatory, and Naval Aviation Detachment, M. I. T., as Aerographer. A. E. F., June '18—Jan. '19; Aerographer, U. S. Naval Air Station, Queenstown, Ireland, 15 June '18; Liaison Officer with Air Ministry, U. S. Naval Hq., London, 1 Nov. '18—15 Jan. '19.
- *McKAY, G. L. (IV). See Roll of Honor (pages 91 and 149).
- McMENIMEN, R. A. (X) 2d Lt., 8th Cav., 15 Aug. '17—30 Apr. '19.
- MacLEOD, N. D. (II) Maj., F. A. 1st Lt., F. A., 5 Aug. '17; Capt., 1 Oct.; Maj., 13 Oct. '18. Entered Service with Federalized National Guard, 5 Aug. '17. A. E. F., 9 Oct. '17—10 Apr. '19, 103d F. A. Scicheprey; Xivray-Marvoisin; Champagne-Marne Defensive; Aisne-Marne Offensive; St. Mihiel Offensive; Meuse-Argonne Offensive. Distinguished Service Cross; Croix de Guerre with Palm. (Page 134.)
- MAGOON, E. H. (XI) Member, Amer. Red Cross Sn. Comm. to Serbia, May '15; on Engineering Comm., in epidemic control and relief work in Durazzo, Albania Oct.; assisted in Organizing Sn. Engr. Bu., Serbian Govt. Hq., Corfu, Greece, and made sanitary survey of non-resident Greek population temporarily located in Greek Macedonia, until Aug. '16. Received Gold Medal from Serbian Govt. See Civilian Record and page 292.
- *MASON, E. W. (III). See Roll of Honor (page 91).

REGISTER OF MILITARY RECORDS

- MAY, J. E. (I) C. C. M., U. S. N. R. F. C. M. 2 cl., U. S. N. R. F., 15 Dec. '17; C. M. 1 cl., June '18; C. C. M., Dec. Brooklyn Navy Yard, Dec. '17; U. S. Naval Training Station, Great Lakes, Ill., Oct. '18—Apr. '19.
- MAYER, H. A. (XIV) Sgt., A. S. P. Pvt., A. S. (Spruce Div.) 28 July '18; Corp., 1 Oct.; Sgt., 1 Jan. '19.
- MAZZEI, F. J. (VI) Pvt. 1 cl., A. S. 31 Co., 8th Training Bn., 151st Depot Brig., Camp Devens, Mass., 2 Jan. '17; Kelly Field No. 2, 30 Nov. Waco, Texas, 25 Dec.; 823d Aero Sq., 29 Jan. '18. A. E. F., 17 May '18—20 Jan. '19; 1108 Aero Sq., 26 Aug. '18; Engine Fitter, English airdrome, Gloucester, England; Draftsman on airplanes in France, 5 Sept. '18—20 Jan. '19; 1106 Aero Sq., 18 Sept.; 490 Aero Sq., 1 Jan. '19.
- MENDENHALL, F. D. (I) 1st Lt., Engrs. Pvt., Engrs., 19 Aug. '17; Corp., Oct.; Sgt., Nov.; Supply Sgt., 1 Jan. '18; Mr. Engr. (jr. gr.), 13 May; 2d Lt., 8 Sept.; 1st Lt., 2 Oct. '18. 7th U. S. Engrs., 5th Div., 19 Aug. '17. A. E. F., 30 Mch. '18—1 Apr. '19; Vosges Sector St. Mihiel Offensive; Meuse-Argonne Offensive; Luxembourg, 27 Nov.—28 Feb. '19. Distinguished Service Cross. (Pages 135, 192 and 200.)
- MERRILL, S. W., Capt., Engrs. Entered Service, 12 May '17; 1st Lt., Engrs.; Capt., 12 July '18. 301st Engrs., Camp Devens, Mass. A. E. F., 12 July '18—1 May '19; 2d Army Staff, 28 Oct. '18; 465 Engr. Pontoon Tn. 12 Mch. '19. St. Mihiel Offensive, 12-16 Sept. '18; Toul Sector, 16 Sept.—16 Nov. '18.
- *MILLER, E. T. (I). See Roll of Honor (page 129).
- *MILLIKEN, A. S. (I). See Roll of Honor (pages 91 and 172).
- MITCHELL, E. A. (VI) Ensign, U. S. N. R. F. Chief Elec., U. S. N. R. F., 19 July '17; Ensign, 11 Feb. '18. Convoy duty, 11 Feb. '18—18 June '19.
- MOORE, M. V. (I) Capt., Engrs. Pvt., Engrs., 13 May '17; 1st Lt., 15 Aug.; Capt., 5 Sept. '18. 307th Engrs., Camp Gordon, Ga. Feb. '18; Camp Lee, Va., Apr. '18; 210th Engrs. until 28 Feb. '19.
- MOORE, W. W., 2d Lt., Inf. (Machine Gun Company), '16—'20.
- MURPHY, E. E. (I) Capt., C. A. C. 1st Lt., Ft. Monroe, Va., in Nov. '17; Capt., Ft. Revere, Mass. in Mch. '18.
- NEWLIN, E. M. (VI) Capt., Inf. Entered Service, 11 May '17; 1st Lt., Inf.; Capt., 27 Oct. '18. Co. C, 312th M. G. Bn., Camp Meade, Md. A. E. F., June—Dec. '18; 312th M. G. Bn., 79th Div. Meuse-Argonne Offensive. Wounded, 30 Oct. '18.
- O'FARRELL, L. R. (I) Sgt., 4 Inf. National Argentine Service in Jan. '18.
- OLESEN, C. W. (II) 2d Lt., F. A. Pvt., Engrs., 15 Dec. '17; Candidate, Off. Tr. Sch., 15 June '18; 2d Lt., F. A., 1 Sept. '18. Ft. Slocum, N. Y.; Engr. Co. No. 1, Camp Johnston, Fla., 15 Dec. '17; Motor Truck Co. 333. Supply Tn., Camp McClellan, Ala.; F. A. Cent. Off. Tr. Sch., Camp Taylor, Ky., 15 June '18; 58th F. A., Camp Jackson, S. C., Sept.—6 Feb. '19. See Civilian Record.
- OSBORNE, E. L. (I) Maj., Engrs. 2d Lt., Engrs., 1 Dec. '16; 1st Lt., 14 Apr. '17; Capt., 15 May; Maj., 16 Aug. '18. 1st Engrs., Washington Barracks, D. C., 1 Dec. '16; Ft. Leavenworth, Kan., May '17. A. E. F., Mch. '18—Sept. '18; Act. Adj. Supply Officer, 7th Engrs.; Cons. Hq., 5th Div., Gardermur, St. Die and La Couvelle, PARIS. MAURICE (IV) 1st Lt., Q. M. C. Pvt., Q. M. C., 30 Nov. '17; 2d Lt.; 1st Lt., 9 Nov. '18. Utilities Detachment, Cons. Div., Q. M. C., Camp Johnston, Fla., 30 Nov. '17—1 Dec. '18.
- PARSONS, ROBERT (VII) 1st Sgt., C. W. S. 1st Sgt., 4th Engr. Tr. Regt., 29 May '18; transferred to C. W. S., Edgewood Arsenal, Md., mfr. of mustard gas, Aug. '18.
- PATTEN, E. L. O. (II) 2d Lt., Ord. Corps, attached to A. S. Entered Service, 15 Dec. '17. Worked on anti-aircraft and mobile gun-carriage design, Washington, D. C., Jan.—Mch. '18; Machine Gun Camp, Camp Hancock, Augusta, Ga., Apr.—June '18. A. E. F., June '18—Mch. '19; Armament Officer, 139 Aero Sq., 2d Pursuit Group, 1st Army. Toul Sector; St. Mihiel Offensive; Meuse-Argonne Offensive.
- PEASLEE, A. F. (I) Lt., C. E. C., U. S. N. Lt. (j. g.), U. S. N., 27 June '17; Lt., 15 Oct. U. S. Naval Academy, Annapolis, Md., July '17; supervision of cons. work, Puget Sound Navy Yard, Bremerton, Wash., Aug. '17—June '19.
- PEATROSS, R. W., JR. (II) Capt., Ord. Corps. In charge of Ordnance Stores, Springfield Armory, 15 Aug. '17; Inspector of Cons., Nitrate Plant No. 1, Sheffield, Ala., Mch. '18.
- PECK, E. B. (V) 1st Lt., C. W. S. 2d Lt., C. W. S., 12 Dec. '17; 1st Lt. A. E. F., 26 Jan.—23 Dec. '18; Paris Laboratory, Technical Div., C. W. S.; Hanlon Field, Chaumont, making field experiments on gas warfare; Town Major, Choignes, Haute Marne. See Civilian Record.
- PLATT, P. S. (VII) 1st Lt., Sn. C. Capt., Amer. Red Cross, acting as Chef du Service, Propaganda d'Hygiène Infantile, Bn. D'Assistance à l'Enfance, Paris, Nov. '17—Dec. '18. 1st Lt., Sn. C., A. E. F., at Army University, Beaune, Mch. '19.
- POITNER, J. C. (VI) 1st Lt., Sig. C. Electrical Engr., Hq. Central Depot, Chicago, Ill., 26 Aug. '18; commissioned, 8 Nov. '18. Supervision of telephone and fire alarm cons., making of contracts for leased wire service, settlement of claims in Central Dept., 26 Aug. '18—28 Oct. '19.
- RAUBER, B. T. (X) Pvt., C. W. S., 2 July—16 Dec. '18.
- REILLY, C. F. (I) Lt., Canadian Inf. Pvt., Canadian Inf., June '15; Lt., May '17. C. E. F., Princess Patricia's Light Inf., Aug. '15; wounded Sept. '16, and in hospital in England for five months; transferred to 4th Canadian Labor Bn., Mch. '17. Sanctuary Wood, June '16; Battle of the Somme, July—Sept. '16. Slightly wounded at Courcellette, Sept. '16; seriously wounded Kansas Cross near Ypres, Nov. '17.
- RICHEY, T. B. (XIII) Lt. Comdr., C. C., U. S. N. Navy Yard, Charlestown, Mass.; in charge of conversion of commercial vessels to war purposes; Shop Supt., duties in connection with plant maintenance and development.

TECHNOLOGY'S WAR RECORD

- RICHMOND, H. B. (VI)** 1st Lt., C. A. C. Pvt., Off. Tr. Camp, 12 May '17; 2d Lt., C. A. R. C.; 1st Lt., C. A. C., 15 Aug. 1st Off. Tr. Camp, Plattsburgh, N. Y., 12 May '17; 1st Prov. Tr. Regt., C. A. Tr. Camp, Ft. Monroe, Va., 17 June; C. A. Board, 29 Aug.; 24th Co., Coast Defenses of Boston, 5 Jan. '18; Q. M., Ft. Banks and Heath and Nahant Reservation, 1 Feb.; Camp Engr. and Sig. Officer, Camp Eustis, Va., 5 Aug.; Regtl. Supply Officer, in command Supply Co., 45th Arty., C. A. C., 27 Aug. '18. A. E. F., 21 Oct. '18—31 Jan. '19.
- ROGERS, C. B. (VI)** Pvt., Electrical Research Div., Aviation Sect., Sig. C. Entered Service, 10 Oct. '17. A. E. F., 201st Aero Sq., Paris. Capt., Amer. Red Cross, in Serbia, Greece, Albania, along the Dalmatian Coast, and in Italy, after armistice.
- ***ROGERS, N. W. (VI)**. See Roll of Honor (page 129).
- ROOT, J. A. (IV)** 1st Lt., Engrs. Candidate, 15 May '17; 2d Lt., Engrs. 15 Aug.; 1st Lt., 21 Jan. '18. Off. Tr. Camp, 15 May '17; 301st Engrs., Camp Devens, Mass., 27 Aug. A. E. F., 28 June '18—26 May '19; 301st Engrs., 4th Corps, 3d Army, during march into Germany. St. Mihiel Offensive, 12-13 Sept.; Minor Operations in the Woivre, 14-25 Sept.; Operations between Meuse and Moselle, 26 Sept.—11 Nov.; Army of Occupation, Brohl-am-Rhein, 17 Nov. '18—May '19.
- ROOT, M. T. (VII)** Sgt., M. C. N. Y. N. G., in Texas '16; Ft. Harrison, Ind.; Spartanburg Mobilization Camp; Cornell Medical School; Surgical Ward, Bellevue Hosp., New York City, July '18.
- ROSE, R. P. (V)** Maj., C. W. S. Capt., Gas Def. Serv., Sn. C., 10 Sept. '17; Maj., C. W. S., 1 July '18; Maj., O. R. C., 16 May '19. Officer in Charge, Gas Defense Laboratory, Philadelphia, Pa., 10 Sept. '17; Gas Defense Hq., Washington, D. C., 1 Mch. '18; Officer in Charge, Chemical Dept., Long Island Development Laboratory, Gas Def. Div., C. W. S., 1 July—1 Dec. '18. Disch., 15 Feb. '19.
- ROSS, C. P. (III)** Pvt., A. S. 29th Photographic Sect., 25 July—12 Dec. '18. See Civilian Record.
- RUOFF, C. F. (XIV)** Maj. F. A. Entered Service, 25 Jan. '14; 2d Lt., 26 Nov. '16; 1st Lt., to date from 26 Nov. '16; Capt., 4 June '17; Maj. (T.), 7 Apr. '19. 5th F. A., Ft. Bliss, Texas, Apr. '17; C. O., Btry. E, 5th F. A., 30 May. A. E. F., 20 Aug. '17—13 July '19; 5th Regt., 1st F. A. Brig., 1st Div.; Arty. Inst. Coetquidan, Brittany; Senior Instructor, 155 mm. howitzer firing dept., Souge, 31 Mch. '18; Supervisor of Instruction for Arty. Brigades, Saunles and Pessac Training Areas, 30 June; C. O., Btry. D, 5th F. A., 4 Oct.; C. O., 3d Bn., 5th F. A., 21 Oct.; Inst., 3d Army School for the Care of Animals, Jan. '19; Brig. Adj., 5th Arty. Brig., Grand Duchy of Luxembourg, 14 Apr.—6 July '19. Somerville Sector, 6-20 Nov. '17; Meuse-Argonne Offensive (Grand Pré to Sedan), 4 Oct.—11 Nov. '18; Army of Occupation. (Page 199.)
- RUSSELL, H. R. (II)** 2d Lt., F. A. Pvt., 6 Oct. '17; Corp., Inf., 11 Jan. '18; Sgt., 1 May, 1 July, F. A., 1 Sept. '18. 303d Inf., Camp Devens, Mass., Oct. '17; Off. Tr. Camp, 15 May; Camp Taylor, Ky., 21 July; Personnel Adj., 14th Regt., F. A. Repl. Depot, Camp Jackson, S. C., 1 Sept. '18—6 Jan. '19.
- RUSSELL, P. A. (I)** Lt. (j. g.), U. S. N. R. F. (A). Sea-2 cl., U. S. N. R. F., 15 Dec. '17; C. Q. M., 1 Jan. '18; Ensign, 23 Mch.; Lt. (j. g.), Feb. '19. Naval Aviation Detachment, M. I. T., 15 Dec. '17; Curtiss Aeroplane and Motor Corp., Buffalo, N. Y.; Asst. to Supt. of Cons. of Aircraft, U. S. A., Boston, Apr. '18; Inspector of Naval Aircraft, Gallaudet Aircraft Corp., East Greenwich, R. I., June '18.
- SALISBURY, R. D. (IV)** Capt., Engrs. 1st Lt., Engrs., Aug. '17; Capt., 24 Oct. '18. 1st Off. Tr. Camp, Ft. Leavenworth, Kan., 14 May '17; Asst. Inst., 2d Off. Tr. Camp, Aug.; 305th Engrs., Jan. '18; 9th Engrs. (Mounted), Jan. '18; Adj., 9th Engrs., 24 Oct.—24 Mch. '19; served at Ft. Sheridan, Ill., Camp Lee, Va., and Ft. Bliss, Texas. (Page 4.)
- SAMPSON, H. C. (I)** 2d Lt., F. A. Pvt., F. A., 28 Aug. '18; 2d Lt., F. A. R. C., 18 Dec. '18. F. A. Repl. Troops, Camp Taylor, Ky., 28 Aug.—18 Dec. '18.
- SHACK, T. J. (I)** Lt., C. E. C., U. S. N. Lt. (j. g.), U. S. N., 28 June '17; Lt., 15 Oct. Naval Academy, Annapolis, Md., 5 July '17; Mare Island Navy Yard, Calif., supervising const., including paint, machine, and structural shops, and floating revolving crane, and radio stations in Alaska.
- SHAW, H. D. (VI)** Lt. (j. g.), U. S. N. Chief Elec., U. S. N., 22 July '17; Ensign, 18 Sept.; Lt. (j. g.), 19 Apr. '19. Inst. in Alternating Currents, Harvard Radio School, 22 July '18—Sept. '17. A. E. F., Dec. '17—19 Nov. '19; Destroyer Duty, based on Queenstown, Ireland; in charge of Mine Assembling, U. S. Naval Base No. 18, Inverness, Scotland, and observer aboard ship planting mines of North Sea barrage; in command, Red Rose, first experimental sweeping trip over barage, Dec. '18; in command, Div. of Submarine Chasers during sweeping of barage, Apr.—Oct. '19. Navy Cross. (Pages 146 and 240.)
- SHEDD, GALE, JR. (XIV)** Capt., Ord. Corps. 1st Lt., Ord. Corps, 15 June '17; Capt., 2 May '19. Organized 39th Div. Ord. Depot, Camp Beauregard, La., 15 June '17. A. E. F., 3 Dec. '17—15 Sept. '19; Observer at British Motor Transport School and 4th Corps Siege Park, St. Omer and Ypres, France and Belgium; Ord. Officer, Organization and Training Center No. 1, Ord. Off., 146th F. A., 1st Army; Personnel Adj., Convalescent Camp; Commanding, Ord. Repair Shop, Doulinecourt, Haute Marne; Ex. Officer, Ord. Motor Park, St. Nazaire; with General Sales Agent, Paris, Liaison between French and American Liquidation Comm. British Defensive Sector; Aisne-Marne Offensive; St. Mihiel Offensive.
- SHEDD, P. W. (II)** 2d Lt., A. S. Cadet, 1 Dec. '17; 2d Lt., 15 Aug. '18. School of Military Aeronautics, M. I. T., Dec. '17; Ground School, Cornell University; Sq. 18, Camp Dick, Texas, in Apr. '18; 1st Prov. Tr. Sq. Ellington Field, Texas, in Feb. '19.
- SHEPARD, A. P. (VI)** 2d Lt., F. A. 2d Lt., O. R. C., 15 Aug. '17; 2d Lt., F. A. (Prov.), 1 May '18. Off. Tr. Camp, Plattsburg, May '17; assigned to 4th F. A. Discharged, 1 Apr. '19.
- SHORT, W. C. (I)** 2d Lt., A. S. Entered Service, June '17. A. E. F., Feb. '18—Jan. '19; Engr. Officer and Inspector, 493d Aero Cons. Sq., in direct charge of standard gauge railroad cons. at Romorantin; Casual

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- assigned to Inspection and Acceptance Div., Hq., A. S., Paris, as inspector and buyer of airplanes from French mfrs., June—Dec. '18.
- SHURTLIFF, E. S. (III)** Ensign, U. S. N. R. F. Radio Gunner, U. S. N. R. F., May '17; Ensign, Feb. '18. U. S. S. Pennsylvania, June '17; U. S. S. Minnesota, July; Inst., Radio School, Harvard University, Nov. '17; Div. Radio Officer, Div. 10, Submarine Force, U. S. S. Chicago, June '18; U. S. S. Rainbow, West Indies, Nov. '18—May '19.
- SMITH, P. R. (II)** Lt., U. S. Coast Guard. In West Indies and off Atlantic Coast, Apr. '17—Mch. '18; assigned shore duty for ten months, in charge of machinery repairs on troop transports, Hoboken, N. J.
- SMYTH, F. H. (V)** Capt., C. W. S. American University Experiment Station, Washington, D. C., Sept. '17—Dec. '18.
- SNOW, L. W. (I)** Maj., Ord. Corps. 1st Lt., 11 June '17; Capt., 8 Jan. '18; Maj., 5 Mch. '19. Asst. to Chief of Gun Div., Ord. Dept., Washington, D. C., June '17—1 Mch. '18. A. E. F., 25 Mch. '18—24 Mch. '19; in charge of Tours Office of Aircraft Armament Sect., Ord. Dept., Apr.—July '18; Chief Armament Officer, American Aviation Acceptance Park No. 1, Orly Field, July—Dec. '18; detailed to U. S. Postal Express Service, Vienna, Austria, to organize and operate courier service to keep American Peace Mission in Paris in communication with missions at Vienna, Prague, Warsaw, Danzig, Budapest, Bucharest, Belgrade, and Trieste, Jan.—Mch. '19. (Page 227.)
- SNOW, W. A. (II)** Capt., F. A. 2d Lt., 21 July '16; 1st Lt., 9 June '17; Capt., 19 July '17. Ft. Bliss, Texas, Sept. '16; Ft. Sheridan, Ill., Mch. '17; Camp Perry, Ohio, May '17; Ft. Harrison, Ind., June '17; Camp Sheridan, Ala., Sept. '17. A. E. F., 28 June '18—24 Mch. '19; Regtl. Personnel Officer, 134 F. A., 37th Div., for four months; Regtl. Adj. and Operations Officer. Marbach Sector; Pannes Sector (St. Mihiel Salient). Regiment twice cited for excellent artillery work.
- SPRINGFIELD, C. K. (I)** 2d Lt., C. A. C. Pvt., 6 Dec. '17; Mr. Gun., June '18; 2d Lt., Sept. '18.
- STANLEY, L. L. (VI)** 1st Lt., A. S. A. A. E. F., doing technical work in Aviation Hq., Paris, in Oct. '18. Broke both legs in accident, May '18.
- STAPLES, E. I. (VI)** Ensign, U. S. N. Elec. 2 cl., U. S. N. R. F., 2 Oct. '17; E. 1 cl., 15 Nov. '17; Ensign, U. S. N. R. F., 24 May '18; Ensign, U. S. N., 18 Sept. '18. Naval Radio School, 3 Oct. '17—24 May '18; Naval Academy, 11 June '18—18 Sept. '18; U. S. S. New Hampshire, 12 Oct. '18—16 Dec. '18; U. S. Submarine Patrol, 31 Mch.—27 May '19.
- STEELE, EDWARD (I)** Pvt., Canadian Royal Horse Arty. Enlisted, Aug. '14; Member first C. E. F. to France.
- STEVENS, G. S. (VI)** 1st Lt., Ord. Corps. M. G. and Small Arms Div., Ord. Dept., 10 Sept. '17. A. E. F., Oct. '18—Feb. '19.
- STEWART, A. E. (X)** Capt., Canadian Engrs. Entered Service, Oct. '14. B. E. F., Sig. Co., Canadian Heavy Arty. Corps; transferred to 1st Canadian Div., Sig. Co. Military Cross. (Page 147.)
- STEWART, G. U. (VI)** 2d Lt., Inf. Co. H, 301st Inf., Camp Devens, Mass., in Apr. '18; Co. E, 74th Inf., in Jan. '19.
- STONE, J. H. (II)** Pvt., Ambulance Service, S. S. U. 511.
- STOREY, S. E. (IV)** 2d Lt., Royal Flying Corps. Pvt., 1st Canadian Brig. Air Park, May '15; 2d Lt., Royal Flying Corps, Apr. '18. B. E. F., 1st Canadian Brig. Air Park for twenty-two months; transferred Royal Flying Corps, Nov. '17; graduated on DH-9 bombing planes; Pilot on Bristol Fighters. Ypres, Somme, Cambrai.
- STORKE, H. G. (II)** 2d Lt., Q. M. O. R. C. Sgt., 18 Sept. '18; 1st Sgt., Off. Tr. Unit, 30 Oct.; Bn. Sgt. Maj., 15 Nov.; 2d Lt., O. R. C., 15 Mch. '19. Camp Johnston, Fla., 6 Aug. '18; Camp Alexander, Va., 14 Sept.—10 Dec. '18.
- STRAHLMAN, O. E. (II, VI)** Capt., A. S. A. 1st Lt., Aviation Sect., Sig. R. C., 5 Jan. '17; Capt., A. S. A.; 24 Oct. '18. Asst. Engr. Officer Mineola, L. I., N. Y.; Asst. Officer in charge of training, Mineola, L. I. (2d Aviation School Sq.); transferred to 15th Aero Sq., then to 23d Aero Sq.; Dayton, Ohio, 13 Oct. '17; Chief of Airplane Testing and Inspection, and in charge of Research and Plane Design Drafting Room, McCook Field, Dayton, Ohio; Chief Inst., Airplane Dept., Mechanics School, St. Paul, Minn.; Asst. to Officer in charge of training for all courses; 872d Aero Sq. Disch., 5 Mch. '19.
- STUBBS, A. R. (XI)** 2d Lt., A. S. Entered Balloon Sect., A. S., 1 Nov. '17; qualified as free Balloon Pilot and Aerial Observer; Inst. in Aerial Observation. A. E. F., 11 July '18—3 May '19; 8th Balloon Co. Meuse-Argonne Offensive. Recommended for Distinguished Service Cross. (Page 196.)
- SUTHERLAND, D. L. (II)** Capt., Inf. Commissioned 24 Apr. '17. 16th Pa. Inf. and C. O., Co. F, 112th Inf., 28th Div. A. E. F., 15 May '18—28 May '19; 28th Div., 13 May '18; Staff College, Langres, 15 June '18; attached to G-4, 1st Army, 12 Sept. '18; attached G-1, 7th Army Corps, 8 Oct. '18; attached G-4, 3d Army, 13 Nov. '18; attached G-1, 3d Army, 15 Dec. '18; G-4, 3d Army, 1 Mch.—28 May '19. St. Mihiel Offensive; Meuse-Argonne Offensive; Army of Occupation.
- SWEET, H. A. (I)** Candidate, F. A. Cent. Off. Tr. Sch., Camp Taylor, Ky., 26 June '18.
- TALLMAN, WILLIAM (IV)** Lt., C. C., U. S. N. R. F. Sea., 10 Mch. '17; Ensign, 18 Sept. '17; Lt. (j. g.), U. S. N. R. F., 22 Nov. '18; Lt. (j. g.), C. C., U. S. N. R. F., 2 July '19. Naval Aviation Detachment, M. I. T., 16 June '17; Ex. Officer, U. S. Submarine Chaser No. 226, 9 Oct.; Line Technical Officer attached to Hull Div., Navy Yard, New York City 14 Feb. '18; Asst. General Work Supt. for Production and Maintenance of Construction and Repair Materials, June '18—23 Aug. '19.

TECHNOLOGY'S WAR RECORD

- TAYLOR, E. C. (XI) 2d Lt., Sig. Sect., O. R. C., Commissioned 4 Jan. '19. Sig. C., Officers' Tr. Sch., 31 July '18—19 Dec. '18.
- TAYLOR, P. H. (II) Capt., Ord. Corps. 2d Lt., Engr. O. R. C., 3 Apr. '17; active service, 5 May '17; 1st Lt., Ord. Corps. 17 Aug. '17; Capt., 13 Apr. '19. A. E. F., 8 Sept. '17—10 Feb. '19; C. O., Mobile Ord. Repair Shop, 26th Div.; Inspector of Arty., 1st Army Corps, Sept. '18. Chemin des Dames Sector; Seicheprey; Aisne-Marne Offensive; St. Mihiel Offensive; Meuse-Argonne Offensive; Army of Occupation. Citation from G. H. Q.
- THOMAS, W. G. (II) 2d Lt., Sig. C. Pvt., New York N. G., '16; Pvt., Sig. C., 22 Aug. '17; Corp., 22 Oct.; 2d Lt., 23 Mch. '18. Mexican Border, '16 and '17; Office of Chief Sig. Officer, Washington, D. C., 22 Aug. '17; testing Radio Tractors, J. G. Brill Co. Plant, Philadelphia, Pa., 12 Nov.; Radio Laboratories, Camp Vail, 22 Apr. '18; in charge Model Shop, later in Apparatus Design Sect., 1 Aug.; Off. Tr. Bn., Camp Vail, awaiting overseas orders, 1 Oct.; Disch., 3 Dec. '18.
- THORNTON, I. T. (X) Capt., General Staff. 2d Lt., Inf., 8 May '17; 1st Lt., 15 Aug.; Capt., General Staff, 17 Aug. '18. A. E. F., Oct. '17—July '19; General Staff College, Langres; Operations Sect., General Staff, Hq., 1st Army Corps, 12 Feb. '18. Marne Defensive; Aisne-Marne Offensive; St. Mihiel and Meuse-Argonne Offensives.
- TREAT, H. W. (II) Capt., A. S. P. 1st Lt., A. S., 31 Oct. '17; Capt., 18 June '18. Entered Service 15 Nov. '15; Mexican Border, Corp., Btry. B, 1st Ohio F. A., June '16—May '17; Director of Balloon Production Dept., Washington, D. C., 31 Oct. '17—19 June '19. See Civilian Record.
- TRUE, A. S. (II) 1st Lt., Ord. Corps. 2d Lt., Ord. R. C., 3 Nov. '17; 1st Lt., 8 Nov. '18. Springfield Armory, Mass., 20 Nov. '17; Washington, D. C., 11 Feb. '18. A. E. F., Mch. '18—Jan. '19; M. G. Expert, in M. G. and Small Arms Sect., Engr. Div., Office of Chief Ord. Officer, Hq. S. O. S., Tours. See Civilian Record.
- TURNER, E. O., 2d Lt., A. S. Pvt. 1 cl., Off. Tr. Sch., 12 Jan. '18; 2d Lt., 16 Mch. '18. Cons. and Maintenance Officer, Park Field, Tenn., Mch. '18; C. O., 138th Spruce Sq., Vancouver Barracks, Wash., engaged in construction of Railroad No. 1 on Olympic Peninsula, Wash., July—3 Dec. '18.
- WAFFT, A. H. (V, VII) Capt., Engrs., attached C. W. S., 1st Lt., Sn. C., 19 Sept. '17; 1st Lt., Engrs., Mch. '18; Capt., Engrs., 8 May '18. Training, Washington, D. C., 1 Oct. '18; Inst., attached 399th Engrs., Gas Defense School, Camp Taylor, Ky., 12 Nov. '17; Chief Gas Officer, 84th Div., Mch. '18. A. E. F., May—24 Nov. '18; duty with Chief of Gas Service, Tours, 3 July '18; Gas School, Chaumont; Div. Gas Officer, 29th Div., 14 July '18; in charge of Technical and Intelligence Work, Defense Div., Hq. C. W. S., Oct. '18; Gas School, Chaumont, 1—16 Nov. '18; detailed to U. S. as Inst. Alsace Sector, July—Sept. '18; Meuse-Argonne Offensive, to Oct.
- WARREN, HAROLD (II) Corp., F. A. Camp Devens, Mass., 20 Sept. '17; A. E. F., 13 July—26 Dec. '18; 301st F. A.
- WARREN, W. H. (II) 1st Lt., Sig. C. Aircraft Engr. Div., Sig. C., 1 Aug. '17; Disbursing Officer, Aviation General Supply Depot, Middletown, Pa., Oct. '17—Aug. '18; Supply Officer, Motor Transport Officer, Officer in Charge of Cons. and Maintenance, July '18 to date (Oct. '19). See Civilian Record.
- WATSON, W. P. (I) Maj., C. A. C. A. E. F., Tractor Arty. Service.
- *WEBBER, L. H. (VI). See Roll of Honor (page 125).
- WEBSTER, W. W. (XIII) Lt. Comdr., C. C., U. S. N. Asst. Naval Constructor, Puget Sound Navy Yard, Bremerton, Wash.
- WELLS, R. E., JR. (III) 1st Lt., F. A. Pvt., Off. Tr. Camp, Aug. '17; 2d Lt., F. A., 27 Nov. '17; 1st Lt., 31 Oct. '18. Pvt., Utah N. G., Cav., '16; 2d Presidio Training Camp, San Francisco, Calif., Aug.—Nov. '17; 9th F. A., School of Fire, Ft. Sill, Okla., Nov. '17; transferred 65th F. A. Brig. Staff, July '18. A. E. F., Aug.—27 Dec. '18; Arty. Tr. Camp, Souge.
- WHEELER, R. H. (IV) 2d Lt., C. A. C. Sgt., C. A. C., 25 July '17; 2d Lt., 27 Mch. '18. 17th Co., C. A. C., Boston. A. E. F., 31 July '18—22 Feb. '19, with 71st Arty., C. A. C.
- WHITE, G. W. (II) 2d Lt., Engrs. Pvt., 6 July '17; 2d Lt., 9 June '19. A. E. F., 28 July '17—28 Oct. '19; 17th Engrs. (Ry.); transferred to Hq., Army Service Corps, 28 Aug. '18.
- WHITE, J. M. (VI) Capt., C. W. S. Pvt., M. C., 30 Sept. '17; Sgt. 1 cl., 3 Oct. '17; 2d Lt., Engr. R. C., 30 Feb. '18; 2d Lt., C. W. S., 13 July '18; 1st Lt., 12 Oct. '18; Capt., 12 Nov. '18. Ambulance Driver, American Field Service, S. S. U. 1, with French Army, 1 Mch.—30 Sept. '17. A. E. F., 30 Sept. '17—18 Dec. '18; Asst. Adj. to Gen. Fries, C. W. S. Nivelle's Offensive, '17, Champagne, Verdun, '17. Croix de Guerre with Silver Star. (Page 151.)
- WILD, M. E. (III) Ensign, U. S. N., (A.). Ambulance Driver with French Army, 20 Feb. '16; French Air Service, Mch. '17; U. S. N. (A.), 11 Oct. '18. Croix de Guerre.
- WILKINS, C. H. (II) 1st Lt., Engrs. Mr. Engr. (jr. gr.), 15 Aug. '17; 2d Lt., 16 May '18; 1st Lt., 24 Feb. '19. Co. D, 301st Engrs., Camp Devens, Mass., Oct. '17. A. E. F., 18 Sept. '18—18 June '19 with 543d Engrs. Meuse-Argonne Offensive.
- WILKINS, H. S. (XIV) 2d Lt., C. W. S. Research Div., Nov. '18. See Civilian Record.
- WILLIAMS, F. W. (XI) 1st Lt., C. A. C. 2d Plattsburg Training Camp, 21 Aug. '17. A. E. F., 1 Jan. '18—1 Feb. '19; 56th C. A. C.; attached to A. S., Aerial Observer, July '18. St. Mihiel Offensive; Meuse-Argonne Offensive.
- WINNINGHOFF, W. J. (V) Capt., C. W. S. American University Experiment Station, Washington, D. C., Oct. '18. See Civilian Record.

REGISTER OF MILITARY RECORDS

- WOOD, J. E. (IV) 1st Lt., Engrs. Pvt., Off. Tr. Camp, 8 May '17; 2d Lt., Engrs., Aug.; 1st Lt., 25 July '18. Tr. Camp, Plattsburg and Washington, May—Aug. '17; 301st Engrs., 14 Aug. '17; 101st Engrs., 26th Div., 5 Sept. '17. A. E. F., 26 Sept. '17—25 July '18; with 1st Bn., 101st Engrs., constructing hospitals, Vosges; Regimental Topographical Officer at front. Toul Sector, Mch.—June '18 (Seicheprey); Château-Thierry, July '18.
- WYLDE, H. M. (X) Pvt., C. W. S. Camp Grant, Depot Brig., 25 May '18; Pvt., C. W. S., Edgewood Arsenal, Md., 23 June—Dec. '18.
- YING, Y. T. (II) Reported in Ord. Dept., Ministry of War, Chinese Republic.
- ZECHA, R. F. (VI) Ensign, U. S. N. R. F. U. S. Submarine Base, New London, Conn., 7 Sept. '18—31 Jan. '19. See Civilian Record.
- ZIMMELE, G. B. (VII) 2d Lt., Sn. C. Entered Service, 20 July '18; Camp Sn. Engr., Camp Funston, Kan., 21 Aug. '18; C. O., Sn. Sqd. No. 88, 10th Div., Camp Funston, 1 Oct. '18; Camp Sn. Engr., Langley Field, Va., 6 Dec. '18—28 Feb. '19.
- 1915
- ABRAMS, ALLEN (V) 1st Lt., C. W. S. American University Experiment Station, Washington, D. C., 20 Dec. '17—6 Feb. '19. See Civilian Record.
- ADAMS, B. E., Pvt., Inf. 1st Bn., 151st Depot Brig., Camp Devens, Mass., 5-9 Aug. '18. Disch. because of overweight.
- ALGER, P. L. (VI) Capt., Ord. R. C. 2d Lt., Ord. Corps, 12 Nov. '17; 1st Lt., 3 Sept. '18; Capt., Ord. R. C., June '19. Asst. to Officer in Charge of Range Firing, Sandy Hook and Aberdeen Proving Grounds, 12 Nov. '17—18 Apr. '19.
- *ALTHOUSE, G. N. (X). See Roll of Honor (pages 96 and 186).
- ANDERSON, A. H. (I) Pvt. Inf. See Civilian Record.
- ANDERSON, H. W. (II) Corp., C. W. S. Gas Defense Div., C. W. S., Syracuse, N. Y., 5 Aug. '18; Long Island City, N. Y., 1 Sept. '18—18 Jan. '19.
- ANDREWS, E. R. (XIV) Corp., Sig. C. Pvt., Sig. C., 11 July '17; Corp., Feb. '18. Depot Co. H, 11 July '17; A. E. F., 29 Oct. '17—23 July '19; Motor Dispatch Service, G. H. Q., Nov. '17; Dispatch Rider for 1st and 2d Armies, Sept. '18; with 3d Army in Luxembourg and Germany.
- ARMISTEAD, S. W. (I) 2d Lt., F. A. Pvt., F. A.; Aug. '18; 2d Lt., Dec. '18. Replacement Troops, unattached. See Civilian Record.
- ASHKINS, N. T. (XI) Capt., Tank C. 2d Lt., Engrs. 10 Apr. '17; 1st Lt.; transferred to Tank C.; Capt., Tank C. A. E. F., France and England, 1 May '17—1 Apr. '19; Line of Communications, English Hq., Jan. '18; with 301 and 306th Tank Battalions. Chemin des Dames Sector; two operations on the Somme. Wounded by shrapnell.
- ATWATER, W. C., Capt., Engrs. Entered Service, 16 Oct. '17; A. E. F., 1 Sept. '18—8 Aug. '19, with 2d Engrs. Meuse-Argonne Offensive.
- AUSTIN, R. W. (VII) C. P. O., U. S. N. R. F. Pvt., School of Military Aeronautics, 4 Apr. '18; C. P. O., U. S. N. R. F., 20 July '19.
- BAGDOYAN, S. M. (I) Corp., Q. M. C. Pvt., Inf., 29 Apr. '18; transferred to Q. M. C.; Corp., Q. M. C., Aug. '18. 6th Co., 2 Bn., 151st Depot Brig., Camp Devens, Mass., 29 Apr. '18. A. E. F., 5 July '18—5 July '19. Co. F., 301st Inf.; in charge of Fuel and Forage Storehouse, 76th Div., Aug.; in charge of Forage Storehouse, A. E. F. University, Mch. '19.
- BAILEY, R. O. (XI) Capt., C. W. S. 1st Lt., Sn. C., 12 Oct. '17; transferred to Engrs., 10 Apr. '18; Capt., Engrs., 13 June; transferred to C. W. S., 26 July. American University, Washington, D. C., 12 Oct. '17; Asst. Div. Gas Officer, Camp Wheeler, Ga., 10 Nov.; Div. Gas Officer, 31st Div., 15 Apr. '18. A. E. F., 26 Aug. '18—1 July '19; Asst. Army Gas Officer, 1st Army Hq., 1 Oct. '18; Asst. Corps Gas Officer, 9th Corps Hq., 26 Dec.; University of Clermont Ferrand, 4 Mch. '19.
- BAKER, D. B. (VI) Capt., Inf. Pvt. Off. Tr. Camp, 15 May '17; 2d Lt., Inf., 15 Aug.; 1st Lt., Nov.; Capt., 18 Aug. '18. Off. Tr. Camp, Plattsburg, N. Y., 15 May '17; 30th Inf., Syracuse, N. Y., Aug. A. E. F., 27 Feb. '18—7 July '19; University of Lyons, Lyons, Mch.—June '19. Aisne Defensive; Champagne-Marne Defensive; Meuse-Argonne Offensive. Wounded 15 July '18. Distinguished Service Cross; Croix de Guerre with Palm; Army Citation. (Pages 130, 175 and 193.)
- BARNWELL, J. W., JR. (I) Capt., Engrs. S. C. National Guard, July '16; federalized, Aug. '17; Capt., Engrs. S. C. National Guard, Mexican Border, '16—'17. A. E. F., 18 Oct. '17—28 Apr. '19; 117th Engrs., 42d Div. Luneville Sector, training with the French, 21 Feb.—23 Mch. '18; Baccarat Sector, 18 Mch.—21 June; Champagne-Marne Defensive (East of Rheims), 5-16 July; Aisne-Marne (Château-Thierry) Offensive, 25 July—10 Aug.; St. Mihiel Offensive, 12-30 Sept.; Meuse-Argonne Offensive, 13-31 Oct.; Sedan, 5-11 Nov.; Army of Occupation, 15 Dec. '18—8 Apr. '19.
- BARTLETT, BALL (VI) Warrant Machinist, U. S. N. R. F. (A). M. M., U. S. N. R. F. (A), 11 May '17. C. M. M., 14 Dec.; Warrant Machinist, Aviation Detachment, Naval Base, Norfolk Va., Dec. '17. A. E. F., 18 June '18—6 Jan. '19.
- *BASCOM, E. D. (I). See Roll of Honor (page 98).

TECHNOLOGY'S WAR RECORD

- BAUER, J. T. JR. (VI) Pvt. 2 cl., Radio Branch, A. S., Sept. '18. 298th Aero Provisional Service Sq., Carnegie Institute of Technology, Pittsburgh, Pa., Sept. '18. Rejected for active service on account of defective vision.
- BAXTER, N. E. (II) 1st Lt., Engrs. Pvt., Off. Tr. Camp, 13 May '17; 2d Lt., Q. M. C., Aug. '17; 1st Lt., Dec.; transferred to Engrs., 3 July '18. Off. Tr. Camp, 13 May '17; 311th Am. Tr., Motor Sect., Camp Grant, Ill., Sept.; Head of Tractor Dept., Motor Transport School, Camp Johnston, Fla., Dec.; Camp Humphreys, Va., July '18; Inspector, Military Ry., Office of Chief of Engrs., Washington, D. C., Sept. '18—July '19.
- BEIERL, H. J. (IV) Corp., Engrs., 25 May '18. 312th Engrs., 87th Div., N. A. Camp Dix, N. J., 26 May '18. A. E. F., 5 Sept. '18—July '19; trained at Paris; S. O. S., La Rochelle and La Pallice, constructing Car Erection Plant; Sect. Engrs. No. 7 Hq., designing central power plant for car plant; at Bordeaux assigned to topographical work on billet areas in Base Sect. No. 2.
- BELCHER, DONALS (X) Ambulance Driver, American Field Service, 14 Apr. '17. S. S. U. 19, American Field Service with French Army, 14 Apr.—14 Oct. '17. Croix de Guerre with Silver Star. See Civilian Record and page 147.
- BENGTSON, L. T. (IV) 2d Lt., Military Intelligence Div. Pvt., Corps of Intelligence Police, 11 Mch. '18; Sgt., 12 Mch.; 2d Lt., Military Intelligence Div. Reserve Corps. Washington, Newport News, and Norfolk; in charge of military administration, Washington Detachment, C. I. P., 11 Mch. '18—8 July '19.
- BERGER, H. E., JR. (VII) reported to have been in Serbia with the American Red Cross in '15.
- BIDWELL, C. A., JR. (VI) Radio Sgt., C. A. C., 15 Dec. '17. 55th Regt., C. A. C., 15 Dec. '17. A. E. F., 24 Mch. '18—22 Jan. '19. Aisne-Marne Defensive; Operations on the Vesle; Meuse-Argonne Offensive. (Page 292.)
- BIRNBAUM, C. A. J. (X) Sgt., M. C. Pvt., M. C., Nov. '17; Corp.; Sgt., U. S. Base Hospital No. 1, New York City, Nov. '17. A. E. F., Apr. '18—'19; Base Hospital No. 1, Bellevue Unit, Apr. '18; Dept. of Disinfection, Hosp. Center, Dec.; Beaune University, Mch. '19.
- BLACKMORE, C. T. (VI) Pvt., M. D., 23 July '18. Development Bn., Camp Greenleaf, Ga., 23 July '18—17 Jan. '19.
- BLOMQUIST, F. C. (I) Sgt., Q. M. C. Sgt., Cons. Div., 5 Oct. '17; Camp Devens, Mass., Oct. '17; Camp Lee, Va., Aug.—Nov. '18.
- BOND, A. H. (I) Lt. (T), C. E. C., U. S. N. Lt. (j. g.), C. E. C., U. S. N., 15 June '17; Lt. (T), 15 June '17. Military Academy, Annapolis, Md., for six weeks; Asst. Public Works Officer of Navy Yard and 6th Naval Dist., Charleston, S. C., 14 Aug. '17; Acting Public Works Officer, Oct.—Dec. '18 and Mch. '19—'20.
- BOYNTON, F. H. (VI) Capt., Engrs. Pvt., Off. Tr. Camp, 15 May '17; 1st Lt., Engrs., 29 Aug.; Capt., 8 June '18. 1st Off. Tr. Camp, Ft. Harrison, Ind., 15 May '17; 9th Engrs. (Mounted), El Paso, Texas, 29 Aug.; Repl. Troops, Camp Humphreys, Va., 8 June '18; Camp Forrest, Ga., 29 July; Regt. Unit Supply Officer, 213th Engrs., Camp Lewis, Wash., 15 Aug.; Camp Kearney, Calif., 27 Feb.—23 Apr. '19.
- BOYNTON, K. K. (VI) Capt., Marine Corps. 2d Lt., Marine Corps, 29 July '17; 1st Lt., 1 July '18; Capt., 2 July '18. Advanced Base Searchlight Co., 29 July '17; Co. O., Btry. Station, Harbor Defense, Virgin Islands, May '18—May '19.
- BRACKETT, W. H. (VI) Sgt., Engrs. Pvt., Inf., 22 Sept. '17; transferred to Engrs., 24 Sept.; Corp., 24 Sept. Sgt., 12 Feb. '18. 301st Inf., Camp Devens, Mass., 2 Jan. '18—Jan. '19.
- BRAND, C. L. (XIII) Lt. (j. g.), U. S. N. R. F., Nov. '17. Expert in Explosives, Bu. of Ord., Navy Dept., Washington, D. C., Nov. '17—'19.
- BRANDT, M. F. (V) (X) Ensign, U. S. N. R. F., Apr. '18.
- BROWN, H. W. (IV) 1st Lt., C. W. S. 2d Lt., Engrs., 7 May '17; 1st Lt., C. W. S., 13 Nov. '18. A. E. F., 11 Dec. '17—29 July '19; Inst., 11 June '18; Asst. Director, 25 Aug.; Acting Director, 10 Nov.; Army Gas School, Langres; Asst. Divisional Gas Officer, 26th Div., Jan. '19; Student, Ecole Nationale des Ponts et Chaussées, Paris, Mch.—July.
- BROWN, R. G. (IV) Sgt., F. A. 101st F. A., Nov. '17. A. E. F., Dec. '17; Asst. Band Leader, Hq. Co., 101st F. A., 26th Div.
- BROWN, T. G. (X) Sgt. 1 cl., Inf. Pvt., Q. M. C., 2 Aug. '17; Sgt., 24 Sept.; transferred to Inf.; Sgt. 1 cl., Inf., 30 Mch. '18. Ft. Strong, Boston Harbor, Aug. '17. A. E. F., 27 Nov. '17—25 Aug. '19; Hq. Troops, 1st Div., 20 Oct. '18. Montdidier-Noyon Defensive (Cantigny Sector); Aisne-Marne Offensive (Soissons); St. Mihiel Offensive; Meuse-Argonne Offensive; Army of Occupation. Wounded, 3 Mch. '18. (Page 179.)
- BUCK, H. C. Spc., C. G. M., U. S. N. R. F. Sea. 2 cl., U. S. N. R. F., 14 June '17. E. (Radio), 3 cl., Oct.; C. G. M., May '18. Radio School, Philadelphia, Pa., 14 June '17; U.S.S. Peter H. Crowell, Dec.; Naval Proving Ground, Indian Head, Md., inspecting smokeless powder, Apr.—Dec. '18.
- BUCKLEY, F. E. (V) 2d Lt., Inf. Pvt., Off. Tr. Camp, 5 Aug. '18; 2d Lt., Inf., 1 Dec. Co. 7, Off. Tr. Sch., Camp Johnston, Fla., 5 Aug. '18.
- BURTON, REUBEN, JR. (IV) 1st Lt., Inf. Pvt., Off. Tr. Camp, 14 May '17; 1st Lt., Inf., 15 Aug. 317th Inf., 15 Aug. '17. A. E. F., 26 May '18—20 May '19. Somme Offensive, 8-14 Aug.; St. Mihiel Offensive; Meuse-Argonne Offensive, 26 Sept.—10 Oct.
- BYRNES, B. H. (IV) Capt., C. A. R. C. 1st Lt., C. A. C., 27 Aug. '17; Capt., C. A. R. C., 15 May '19. Btry. E, 64th Arty., 27 Aug. '17. A. E. F., 31 July '18—23 Feb. '19.
- CAFFREY, A. J. (XI) 2d Lt., Sn. C. Pvt., Q. M. C., 4 Dec. '17; transferred to Sn. C., 1 Apr. '18; Corp., Sn. C. 1 June; Sgt., 1 July; 2d Lt., 28 Oct. Disch., 14 July '19.

REGISTER OF MILITARY RECORDS

- CALDER, C. H. (VI) Pvt., M. D. Sect. 540, U. S. Army Ambulance Serv., 2 Oct. '17; transferred to 827th Aero Sq., 4 Mch. '18. A. E. F., England, 2 May '18—9 Mch. '19.
- CAMP, O. P. (II) Sgt., Sig. C. Meteorological Sect., Sig. C., 19 Apr. '18—4 Feb. '19.
- CAMPBELL, W. L. (I) 1st Lt., Military Intelligence Div., General Staff. Pvt., Off. Tr. Camp, 14 May '17; 1st Lt., A. S., Sig. R. C., 4 Sept.; Military Intelligence Div., General Staff, 22 Sept. 1st Off. Tr. Camp, Ft. Myers, Va., 14 May '17; War College, 19 Sept.; New York Office of Military Intelligence, 22 Sept. A. E. F., 12 June—Dec. '18; Hq., 3d Army Corps, 6 Aug. Aisne-Marne Offensive, Meuse-Argonne Offensive.
- *CATTON, R. B. (VI). See Roll of Honor (page 114).
- CEDARSTROM, HJALMAN (VII) Sgt., A. S. A. E. F., 96th Aero Sq., in '18.
- CHELLMAN, L. H. (I) Pvt., Engrs., 1 Oct. '18. 1st Repl. Regt., Engrs., 1 Oct. '18; Engr. Off. Tr. Sch., Camp Humphreys, Va., 1-27 Nov. See Civilian Record.
- CLARK, L. V. (VI) 1st Lt., A. S. A. Pvt., A. S., Sig. C., Dec. '17; 1st Lt., A. S. A. A. E. F., Feb. '18, with 100th Aero Sq. Was on S.S. Tuscania, torpedoed, 6 Feb. '18.
- CLARK, S. E., 2d Lt., Marine Corps Reserve. Sea. 2 cl., U. S. N. R. F., 5 May '17; Ensign, 8 Mch. '18; transferred to 2d Lt., Marine Corps Reserve, 26 May '18. Naval Air Station, Miami, Fla.; 1st Marine Aviation Force, 26 May '18. A. E. F., 1 Aug.—30 Nov. '18; Field D., Northern Bombing Group, Oye near Dunkirk.
- CLARK, V. E. (XIII) Lt. Col., A. S. Graduated from Naval Academy '07; transferred to C. A. C. '09; transferred to A. S., '13. Chief Aeronautical Engr., U. S. Army, Apr., '17—Mch. '18; Airplane Representative Bolling Mission to France, England, and Italy, June—Sept. '17; C. O., McCook Field, Dayton, Ohio, 1 Nov. '17—Mch. '18; Chief of Airplane Design, Technical Div. A. S., Sept. '18. (Page 267.)
- *CLARKE, J. P., JR. (VI). See Roll of Honor (page 115).
- COLDWELL, E. S. (VI) 2d Lt., Inf. Inst., Machine Gun Work, Camp Hancock, Ga., 16 May—6 Dec. '18. Was refused enlistment in Aviation Sect. on account of heart murmur.
- COLLINS, G. H., 1st Lt., Engrs. 1st Lt., C. A. C., 2 Apr. '17; transferred to Engrs., 25 Aug. Co. F, 101st Engrs., 26th Div., Camp Devens, Mass., 25 Aug. '17. A. E. F., 24 Sept. '17—6 Mch. '19; C. O., Co. F, 101st Engrs.; built Hq. Camp, G. H. Q., Chaumont, and Field Hosp., Liffol-le Grand; Inst. in Engr., 92d Div. Intelligence School, Bourbonne les Bains. Chemin des Dames; Toul Sector (Apremont); Aisne-Marne Offensive (Chateau-Thierry); Vosges Mountains; Frapell (Vosges); Meuse-Argonne Offensive. Wounded 27 Sept. '18.
- CONWAY, E. F. (V) 1st Sgt., Q. M. C., N. A., Nov. '17. Camp Johnston, Fla., Nov. '17. A. E. F., before Nov. '18; Supply Co., 310.
- COOK, F. L. (II) 2d Lt., Ord. Corps. Small Arms Sect., Ord. Dept., Washington, D. C., 20 Nov. '17; Inspection Div., 20 Nov. '17—1 Mch. '19.
- CORNELIUS, A. F. (VII) 1st Lt., U. S. Public Health Service. Sn. Inspector, Amer. Red Cross Sn. Comm. to Serbia, '15; Surgeon, Lady Paget's Hosp., Serbia, Oct. '15—Feb. '16; U. S. Public Health Service, Newport News, Va., Dec. '18.
- COWLES, M. W. (XI) 2d Lt., Engrs. Sect., Sn. C. C. O., Sn. Sqd. 86, attached 9th Div.; Camp Sheridan, Ala., 10 Aug. '18—10 Feb. '19. See Civilian Record.
- CRAIG, H. L. (II) 2d Lt., A. S. Sgt., Inf., 3 Oct. '17; 2d Lt., 1 June '18; transferred to A. S., 4 July. Co. A, 347th M. G. Bn., 91st Div., 3 Oct. '17; Inf. Replacement Regt., Camp Lee, Va., 1 June '18; 113 Engr. Sqd., A. S., Cut-Up-Plant, Vancouver Barracks, Wash., 4 July '18—30 Jan. '19.
- CURRY, WALTER (IV) Corp., Inf. Pvt., Inf., 2 Oct. '17; Corp., May '19. 307th Field Sig. Bn., 2 Oct. '17. A. E. F., May '18—May '19. St. Mihiel Offensive; Meuse-Argonne Offensive.
- CURTIS, R. E. (VI) Pvt., Engrs., 17 Sept. '18. 1st Repl. Regt., Engrs., 17 Sept. '17; Engr. Off. Tr. Sch., Camp Humphreys, Va., 7 Oct.—27 Nov. '18.
- DALEY, H. F. (II) 1st Lt., Aviation Sect., Sig. C. Pvt., 1 cl. (Cadet), A. S., Feb. '18; 2d Lt., A. S. A. June; 1st Lt., Aviation Sect., Sig. C., Mch. '19. School of Military Aeronautics, M. I. T., Feb. '18; Engr. Officer, Post Field, Ft. Sill, Okla., June '18—Jan. '19.
- DAVIS, E. C., M. M. 1 cl., U. S. N. R. F. U.S.S. Vestal and U.S.S. Milwaukee, '17.
- DAVIS, F. A. W. (I) Capt., Engr. R. C. 2d Lt., Engrs., June '17; 1st Lt., 30 July; Capt., Engr. R. C., 21 Apr. '19. Co. A, 102d Engrs., 27th Div., Camp Upton, L. I., N. Y., July '17; Camp Wadsworth, S. C., Sept.; constructing Govt. Standard Gauge Railroad, Camp Humphreys, Va., Mch. '18. A. E. F., 17 May—7 Sept. '18; Divisional Engr., constructing "Pill boxes" near Kemmel Hill; constructed portion of 2d line of defense, Marieux, 3d British Army Hq. Officer in Charge, M. T. Operation, Camp Humphreys, Va., Sept.; Inst. Military Engr., 13th Div., Camp Lewis, Wash., Nov. '18—Jan. '19. Minor Operation in Ypres-Kemmel Sector, Belgium.
- DELANO, R. O. (I) 1st Lt., Engrs. Pvt., Engrs., 20 Sept. '17; Corp., 1 Nov.; Sgt., 1 Dec.; 2d Lt., 1 Jan. '18; 1st Lt., 1 May '19. Co. B, 301st Engrs., Camp Devens, Mass., 20 Sept. '17. A. E. F., 27 July '18—26 May '19. St. Mihiel Offensive; Army of Occupation, 20 Nov. '18—26 May '19.
- DODD, M. J. (II) Pvt., A. S. A., 9 Aug. '17. Inst. U. S. School of Military Aeronautics, Princeton, N. J., 9 Aug. '17; Aviation Repair Depot, Montgomery, Ala., Jan. '19.
- DOWST, HENRY, JR. (I) 2d Lt., Ord. Corps. Pvt., Ord. Corps, 29 Jan. '18; Sgt., 7 June; 2d Lt., 12 Sept. Ord. Supply Div., Penn State College, 29 Jan. '18; Rock Island Arsenal, 13 Mch.; Inst., Ord. Supply School, Camp Hancock, 3 May.; Ord. M. G. School, 1 July; Raritan Arsenal, Metuchen, N. J., 5 Sept.; Aberdeen Proving Grounds, Md., 4 Oct.—19 Dec.

TECHNOLOGY'S WAR RECORD

- DUFF, JOHN, JR. (II) Lt., M. C., U. S. N. Asst. Surg., Christiansted, San Croix, Virgin Islands, '18.
- DURKEE, C. H. (II) 1st Lt., Ord. Corps. 2d Lt., Ord. Corps., 4 Feb. '18; 1st Lt., 3 Sept. M. G. and Small Arms Branch, Engr. Div., Ord. Dept., 4 Feb. '18—2 Sept. '19. See Civilian Record.
- EARLY, P. H. (IV) 2d Lt., F. A. Pvt., Off. Tr. Camp, 12 May '17; 2d Lt., Aug. '17. Off. Tr. Camp, Plattsburg, N. Y., 12 May '17; Btry. E, 7th F. A., 1st Div., Aug. A. E. F., Sept. '17—June '19; F. A. School, '19; Btry. E, 7th F. A., Tonnerre, (Yonne), Mch. Cantigny Sector; Aisne-Marne Offensive, (Soissons); St. Mihiel Offensive. (Page 179.)
- ELLIOTT, C. E., JR. (XIII) Capt., Engrs. 1st Lt., Engrs., 4 Sept. '17; Capt., 20 Feb. '19. Co. F, 105th Engrs., 30th Div., Camp Sevier, S. C., 4 Sept. '17. A. E. F., June '18—Apr. '18. Ypres; Picardy; Somme Offensive, 15-23 Oct. '18.
- ELLIOT, G. P. (X) Pvt., Engrs. A. E. F., France in '18; Co. A, 14th Engrs. (Ry).
- ENEBUSKE, VIKING (I) Corp., A. S. Pvt., Inf., 5 Oct. '17; transferred to Engrs., Dec.; transferred to A. S., Feb. '18; Corp. A. S. 6th Bn., Depot Brig., Camp Devens, Mass., 5 Oct. '17; 29th Engrs., 31 Oct. A. E. F., 31 Oct. '17—18 July '19; 16th and 636th Aero Sqds. and 1103d Replacement Sq., 2d Aviation Instruction Center, Feb. '18; 3d Balloon Co., May; Sorbonne Detachment, Ecole Nationale des Ponts et Chaussées, Paris, Mch. '19; Casual Co. 2281, July; Co. Interpreter and Telephone Operator. Baccarat Sector, Lorraine, 31 July—2 Sept.; St. Mihiel Offensive, 12-17 Sept.; Meuse-Argonne Offensive, 26 Sept.—11 Nov. '18; Army of Occupation.
- FIELDS, R. F. (X) 1st Lt., Engrs. Pvt., Off. Tr. Camp, '15 May '17; Corp., Engrs., Aug.; Sgt., Jan. '18; 2d Lt., Aug., 1st Lt., Mch. '19. Off. Tr. Camp, 15 May '17; 108th Engrs., 33d Div., Aug. A. E. F., Apr. '18—Mch. '19. Attack before Villers-Bretonneux; St. Mihiel Offensive; Meuse-Argonne Offensive. Gassed 8 Oct. '18 while bridging the Meuse at Consenvoye.
- FINE, SAMUEL (I) Pvt., Gas Defence Div., C. W. S., '18.
- FOGERTY, J. S. (VI) Ensign, U. S. N. R. F., 6 July '18. Submarine Service, U.S.S. N-2; U.S.S. Graf Waldersee. See Civilian Record.
- FOSTER, N. L. (X) 2d Lt., F. A. Pvt., Off. Tr. Camp, 12 May '17; 2d Lt., F. A., 15 Aug. 1st Off. Tr. Camp, Plattsburg, N. Y., 12 May '17; 301st F. A., 76th Div., 29 Aug. A. E. F., 25 June '18—5 Jan. '19; in charge of regtl. wireless and M. G. Inst.; Advance School Detachment, Arty.; Schools at Valdahon and Bordeaux.
- FOWLE, D. A. (IV) Mr. Engr. (j. g.), Engrs. Entered Service, 15 June '17. A. E. F., '17—'19; with 101st Engrs., 26th Div.
- FOX, S. M. (I) Lt. (j. g.), U. S. N. R. F. (A). Sea. 2 cl., U. S. N. R. F., 19 Nov. '17; Ensign, U. S. N. R. F. (A), 25 Mch. '18; Lt. (j. g.), 1 Oct. Inspection and Production of Naval Aircraft, Curtiss Aero and Motor Corp., Buffalo, N. Y.; in charge, Off. Tr. Sch., Buffalo, for inspection of Naval Aircraft; Navy Dept., Washington, D. C., Nov. '18; Asst. to Supt. of Cons., Naval Aircraft, 1st Naval Dist., Jan.—7 Feb. '19.
- FRANKS, J. B., JR. (II) Capt., M. T. C. 2d Lt., Q. M. C., 9 Nov. '17; 1st Lt., M. T. C., 7 Oct. '18; Capt., 13 Feb. '19. A. E. F., 9 Nov. '17—24 July '19; M. T. Service, Q. M. C.; Hq. Organization, M. T. Service, later M. T. C.; at British and French G. H. Q.; Oise-Aisne Offensive, 23 Aug.—14 Sept. '18. Certificate of Especially Meritorious Service, A. E. F.
- FREEMAN, O. R. (IV) 2d Lt., Engrs. Pvt., Engrs., 4 Oct. '17; Corp., July '18; Sgt. 1 cl., 4 Nov.; 2d Lt., Engr. R. C., 1 Feb. '19; 2d Lt., Engrs., 8 Apr. 310th Engrs., 91st Div., Camp Lewis, Wash., Nov. '17. A. E. F., 22 July '18—10 Aug. '19; Draftsman preparing battle maps for 91st Div.; Training School; France, 7 Nov. '18—10 Aug. '19. St. Mihiel Offensive, 13-15 Sept.; Meuse-Argonne Offensive, 26 Sept.—4 Oct., Ypres-Lys Offensive, 31 Oct.—7 Nov. 1.
- FRIEBUS, R. T. (I) reported 1st Lt., Ord. R. C.
- FULTON, F. F. (IV) Jr. Officer, U. S. N. R. F. Sea. 1 cl., U. S. N. R. F., 24 July '18; Q. M. 3 cl., U. S. Naval Auxiliary Reserve, 1 Oct. '18; Jr. Officer, Dec. '18. "Blue Jacket Guard," Torpedo Station, Newport, R. I., 24 July '18; Officer Material School, 1 Oct.; U.S.S. Evelyn, Transport Service, 1 Dec. '18—Feb. '19.
- FUNK, F. J. (VII) Capt., Sn. C. 1st Lt., Sn. C., 8 Feb. '18; Capt., 3 May '19. Food and Nutrition Div., Sn. C. A. E. F., France, England and Russia, 27 July '18—18 July '19; Supervisor of Feeding Men in Rest Camps in England; Sn. Inspector, A. E. F. in North Russian, Dec. '18. St. Mihiel Offensive; several minor engagements south of Archangel, Russia.
- GALLAGHER, J. S. (I) Sgt., Engrs. Co. E, 37th Engrs., 6 Apr. '18. A. E. F., 1 July '18—9 Mch. '19; Army Candidate School, Engr. Branch, Langres, (Graduate), Jan. '19. Aisne-Marne Offensive; St. Mihiel Offensive; Meuse-Argonne Offensive.
- GEER, L. P. (VII) 1st Lt. (Asst. Sanitarian), Public Health Service. 22 Oct. '17—'19.
- GILLESPIE, A. G., Maj., Ord. Corps. Divisional Ord. Officer, 86th Div., Camp Grant, Ill., Mch. '18.
- GLADDING, R. D. (XI) 1st Lt., Engrs., '17. American University, Washington, D. C., Oct. '17; Co. A, 5th Bn. 20th Engrs., Jan. '18; 41st Engrs., Mch.
- GLYNN, J. W. K. (I) Mr. Gun., C. A. C. Pvt., Mass. C. A., National Guard, '12; Mr. Gun., C. A. C., 1 Mch. '18. Ft. Strong, Mass., Aug. '17; Ft. Monroe, Va., Ft. Wright, N. Y. A. E. F., Apr. '18—Feb. '19. St. Mihiel Offensive; Meuse-Argonne Offensive. Gassed, Argonne Forest, Oct.; wounded, Romagne, 1 Nov. '18.
- GOODELL, E. B., JR. (IV) Ensign, U. S. N. R. F. (A). Naval Aviation Detachment, M. I. T., '18; Chatham Naval Air Station, '18—10 Jan. '19.
- *GUETHING, T. H. (II). See Roll of Honor (page 121).

REGISTER OF MILITARY RECORDS

- HADLEY, H. E. (X) Capt., Engrs. 1st Lt., Engrs., 27 June '17; Capt., 29 May '18. Entered Service, Nov. '14; 101st Engrs., 26th Div., Camp Devens, Mass. A. E. F., 25 Aug. '17—5 Apr. '19; Co. C, Hq., 101st Engrs. Chemin des Dames; Seicheprey; Champagne; Aisne-Marne Offensive; St. Mihiel Offensive; Toul Sector; Meuse-Argonne Offensive.
- HALE, C. W. (IX) 1st Lt., Ord. Corps, 20 July '17. Watervliet Arsenal, 20 July '17; Ord. Depot, Camp Cody, N. Mex., 19 Aug. A. E. F., 3 Dec. '17—4 Apr. '19; International Ord. Depot No. 1, Nevers, 8 Jan. '18; Advanced Ord. Depot No. 1, Is-sur-Tille, 3 Mch.; 302d Mobile Ord. Repair Shop, 15 July. Vesle; Oise-Aisne Offensive; Meuse-Argonne Offensive.
- HALL, A. E. B. (II) 1st Lt., Ord. Corps, 26 June '17. Aberdeen Proving Ground, testing materials for trench warfare, Md., 24 Jan.—26 Dec. '18.
- HALL, C. L. (I) 2d Lt., C. A. C. Pvt., C. A. C., 20 May '18; 2d Lt., 25 Sept. 7th Co., C. A. C., Portsmouth N. H., 20 May '18; Inst. C. A. School, 25 Sept.; 27th C. A. C., Camp Eustis, Va., 20 Oct.—16 Dec. '18.
- HAMILL, C. H. (I) 2d Lt., Inf. R. C. Pvt., Inf., 15 Dec. '17; 2d Lt., Inf. R. C., Nov. '18. Co. C, 63d Inf., 15 Dec. '17; Off. Tr. Sch., May '18; M. G. School, July; disch. Nov. '18. Re-enlisted 10 June '19, and went to Siberia.
- HARDENBROOK, W. L. (XI) Lt., Inf., '18. A. E. F., '18, Co. I, 28th Inf.
- HARDING, MARSTON, Pvt., M. T. C., 13 Apr. '18. Automobile engine repairman, 306th Unit, Camp Holabird, Baltimore, Md. See Civilian Record.
- HARPER, R. R. (III) Maj., M. T. C. Capt., M. T. C., May '17; Maj., Mch. '19. A. E. F., Dec. '17—22 July '18; M. T. C., Reconstruction Park; in charge of Procurement Dept., M. T. C. Hq., Tours, Aug. '18.
- HART, M. S. (VI) 2d Lt., F. A. Hq., 109th F. A., Augusta, Ga., '17. A. E. F., in '18; 301st Tank Bn., attached B. E. F., Saulty, Mch. '18.
- *HARTMAN, F. S. (V). See Roll of Honor (page 105).
- HASLAM, GREVILLE (IV) Sapper, Canadian Engrs., 9 Sept. '18. Draft Co. A, 16th Field Co., Canadian Engrs., 9 Sept.—18 Dec. '18. Secret Service work in Philippine Islands, '15—'18.
- HATCH, A. S., 2d Lt., Ord. Corps.
- HAWGOOD, A. C. (II) 1st Lt., Ord. Corps, 15 Nov. '17. Inst., Holt Mfg. Co., Peoria, Ill.; Four Wheel Drive Co., Clintonville, Wis.; Rock Island Arsenal; 6th Hv. Arty. Mobile Ord. Repair Shop, Camp Hancock, Ga., 1 June '18. A. E. F., 13 Sept. '18—16 Feb. '19. Southampton, England; Cherbourg, Angouleme and Limoges, France.
- HAYDEN, W. R., E. 3 cl., U. S. N. R. F., '17—Jan. '19.
- HILTON, GABE (III) 2d Lt., F. A. Pvt., Off. Tr. Camp, 12 May '17; 2d Lt., F. A. Aug. 2d Tr. Btry., Presidio, Calif., May '17; 347th F. A., American Lake, Wash., Aug. A. E. F., 14 July '18—2 Apr. '19; with Btry. E, 347th F. A. Gravenmacher-on-Moselle, Germany, Dec. '18—Feb. '19.
- HINCKLEY, R. R. (XI) reported in C. W. S.
- HOOPER, PETER (II) Capt., Ord. Corps. Pvt., Inf., 1 Sept. '17; Sgt., 12 Oct.; 1st Lt., Ord. Dept., 20 Oct. Capt., 6 May '19. Co. D, 301st Inf., Camp Devens, Mass., 1 Sept. '17. A. E. F., 1 Apr. '18—25 June '19; American Ord. Base Depot, Is-sur-Tille.
- HOUSER, W. A. (II) 2d Lt., Ord. Corps, 30 Apr. '18. Co. D, Supply School, Camp Hancock, Ga., Apr. '18; Nitrate Div., Nitrate Plant No. 2, Muscle Shoals, Ala., Aug. '18—Jan. '19.
- HOWE, R. A. (IX) 1st Lt., C. W. S. 1st Lt., Sn. C., 3 Apr. '18; changed to C. W. S. Gas Defense Plant, Long Island City, N. Y., Apr. '18; Field Testing Sect., Oct.; Hq., Gas Defense Div., Jan.—Apr. '19.
- HOWKINS, J. S. (II) Pvt., M. D., 19 Dec. '17. Interne, St. Luke's Hospital, New York.
- HUGHES, D. M. (VI) Ensign, U. S. N. R. F. (A). E. 3 cl., N. N. V., 6 Apr. '17; U. S. N. R. F., 27 May; Ensign, U. S. N. R. F. (A), 28 May '18. U.S.S. Missouri, 10 Apr. '17; Naval Air Station, Bay Shore, 22 Sept.; Naval Aviation Detachment, M. I. T., 15 Oct.; Naval Air Station, Pensacola, Fla., 7 Jan. '18; Naval Air Station, San Diego, Calif., 12 Aug. '18—12 Mch. '19.
- JENNINGS, WILLIAM (I) 2d Lt., Engrs. Pvt., Off. Tr. Camp, 13 May '17; 2d Lt., Q. M. C., 15 Aug.; 1st Lt., 15 June '18; transferred as 2d Lt. to Engrs., 10 Nov. '18 (at own request). 1st Off. Tr. Camp, 13 May '17; Camp Lewis, American Lake, Wash.; Camp Upton, N. Y.; Service of Docks, Wharves, and Transports, Brooklyn, N. Y., Jan. '18; Transport Q. M., U.S.S. Duca d'Acosta, 1 May—1 Nov. '18.
- JOHNSTON, T. R. (IV) Lt., A. S., '17. A. E. F., France, '18; Hq., S. O. S., Transport Div., A. S., June '18.
- JONES, R. H. (VI) Officer Candidate. Candidate, Off. Tr. Sch., Camp Sherman, Ohio. A. E. F., 3d Army Corps School, Clamecy, (Merve).
- KAHN, K. D. (X) Pvt., C. W. S., 26 Oct. '18. See Civilian Record.
- KELLEHER, W. B. (VI) 2d Lt., Inf. Pvt., Inf., 7 Sept. '17; 2d Lt., 1 June '18. Co. B, 301st Inf., 7 Sept. '17; 814th Pioneer Inf., Aug. '18. A. E. F., Sept. '18—Jan. '19; Contr. Center, Mch. '19.
- KELLER, PARRY (II) 1st Lt. Ord. Corps, 11 June '17. Frankford Arsenal, 11 June '17; Member, Philadelphia Dist. Salvage Bd., Ord. Office, 22 Jan.—30 Jan. '19.
- KENNEDY, V. C. (VI) Capt., F. A. 1st Lt., F. A., '18. A. E. F., Btry. C, 147th F. A., 66th Brig.; Btry. A, 31st F. A., '19.

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- KING, H. L. (I) 1st Lt., Engrs. Pvt. Off. Tr. Camp, May '17; 2d Lt., Engrs., Aug.; 1st Lt., 3 Oct. '18. 1st Off. Tr. Camp, Plattsburg, N. Y., May '17; 27th Engrs., Camp Meade, Md., Aug. A. E. F., 30 June '18—Mch. '19. Marine Sector (Inf. Reserves having no Engr. equipment); St. Mihiel Offensive; Bridge building, Clermont-Argonne, 20 Sept.; Vertou near Nantes, Mch. '19.
- KING, K. T. (X) 1st Lt., Ord. Corps. 1st Off. Tr. Camp, Ft. Sheridan, 11 May '17; Machine Gun and Small Arms Sect., Ord. Dept., Aug. A. E. F., 8 May '18—12 Feb. '19; with 36th Div. operating with 4th French Army, west of Argonne; Hq., S. O. S., Oct. '18. Champagne Offensive.
- KUTTNER, JULIUS (II). Warrant M. M., U. S. N. R. F. See Civilian Record.
- LACY, C. W. (VI) 1st Lt., Ord. Corps. 2d Lt., Ord. Corps., 9 Nov. '17; attached A. S., Feb. '18; 1st Lt., Ord. Corps., Jan. '19. A. E. F., 23 Apr. '18—3 May '19; Equipment Div., Ord. Dept.; Armament Officer, 90th Aero Sq. St. Mihiel Offensive; Meuse-Argonne Offensive. See Civilian Record.
- LAMB, L. C. (V) Sgt. 1 cl., C. W. S. Pvt., C. W. S., 11 Feb. '18; Sgt., Sept.; Sgt. 1 cl., Dec. Development Div., C. W. S., 11 Feb. '18—7 Feb. '19.
- LAMSON, H. W. (VIII) C. E., U. S. N. R. F., 9 Aug. '18. Asst. on anti-submarine problems, Naval Experimental Station, New London, Conn., 9 Aug. '18—11 Aug. '19.
- LEE, H. L. (VI) Lt., U. S. N. Ensign, '17; Lt. (j. g.), Feb. '18; Lt., Sept. Radio and Signal Officer, U.S.S. Agamemnon, Sept. '17; Aide on Staff, Comdr. of Cruiser and Transport Force, Apr. '18; U. S. Naval Ry. Btry. No. 1, Soissons, France, Sept.; U.S.S. Wyoming, 6th Battle Sq., Grand Fleet, Oct.; U.S.S. George Washington, Mch.—July '19.
- LEGARD, F. C., Pvt., Inf., 24 June '18. 22d Co., 6 Bn., 151st Depot Brig., Camp Devens, Mass.
- LEWIS, H. I. (II) 1st Lt., Ord. Corps. 2d Lt., Ord. Corps., 30 July '17; 1st Lt., 3 Sept. '18. Dist. Supervisor, Western Dist., for textile inspection, July '17; Asst. Insp. Mgr., Chicago Ord. Dist., Mch. '18; Army Insp. of Ord., American Brake Shoe and Foundry Co., Erie, Pa.; Special Asst. to Claims Bd., on Arty. Ammunition in Cleveland Ord. Dist., '19.
- LITTLE, J. S. (X) Capt., C. W. S. Lt. C. W. S., Capt., 1 Mch. '18. Gas Defense Div., C. W. S., in charge of laboratory, 17 Aug. '17—'19.
- LYONS, B. P. (X) 2d Lt., Ord. Corps. Trench Warfare Branch, Inspection Div., Ord. Dept., New York City, July '17; Washington, D. C., Jan. '18; Asst. Army Inspector, Indianapolis, Ind., Aug. '18—Aug. '19. While experimenting, hand grenade exploded in right hand, 25 Oct. '18.
- MACBRIDE, E. T. (X) 1st Lt., A. S. A. Pvt. 1 cl., School of Military Aeronautics, 10 July '17; 1st Lt., A. S. A., 16 May '18. School of Military Aeronautics, Ithaca, N. Y., 10 July '17. A. E. F., 27 Oct. '17—27 Apr. '19; Adj. to Officer in Charge of Training, 3d Aviation Inst. Center, May '18.
- MCDONALD, W. J. (VII) Maj., M. T. C. Maj., M. R. C., '17; transferred to M. T. C., Base Hosp., Camp Greene, N. C., Dec. '17. A. E. F., Neuf Chateau, '19.
- MC EWEN, W. R. (II) Ensign, U. S. N. R. F. (A). C. Q. M., U. S. N. R. F., Jan. '18; Ensign (A), May. Co. 13, Ground School, M. I. T., Jan. '18; Inst. Gunnery and Bombs, Ground School, Seattle, Wash., June '18—Feb. '19. See Civilian Record.
- MCINTYRE, J. D. (I) 1st Lt., C. A. C. 2d Lt., C. A. C., '17; 1st Lt., '18. E. A. F. '18. Hv. Arty. School, Jan. '18; Btry. L, 53d Arty., Ft. Monroe, Mch. '19.
- McMURTRIE, D. H. (X) 1st Lt., C. W. S. 2d Lt., Chemical Service Sect., N. A. (later C. W. S.), Dec. '17; 1st Lt., C. W. S., 11 Nov. '18. A. E. F., Jan. '18—Aug. '19; Staff of Gas Officer, 1st Army, Argonne Offensive; Enemy Gas Ammunition Specialist, Intelligence Div.; Student, University of Toulouse. Meuse-Argonne Offensive. See Civilian Record.
- MACNEILL, P. W. (VII) Pvt., Inf. Depot Brig., Camp Devens, Mass., 21 July '18; rejected, physically unfit, July. See Civilian Record.
- MACK, A. W. (X) 2d Lt., C. W. S. Pvt., Gas Defense Service, Sn. C., 13 Dec. '17; Sgt. 1 cl., 5 Apr. '18; 2d Lt., C. W. S., 5 Sept. Field Supply Sect., Astoria, L. J., N. Y., 23 Dec. '17; Long Island City, 4 Feb. '18; second in charge, mig. gas mask equipment, J. Phelan & Sons, Lynn, Mass., 5 June; Officer in Charge, 5 Sept.; Hq., C. W. S., New York City, adjusting cancelled claims, Jan.—27 Mch. '19.
- MACKENZIE, C. C. (X) 2d Lt., A. S. A., 21 Feb. '18. School of Military Aeronautics M. I. T., July '17; Sqd. B, Wright Field, Dayton, Ohio, Feb. '18; Ellington Field, Texas. A. E. F., 1 Sept.—25 Dec. '18. Injured in airplane wreck, 22 Oct. '18.
- MALCOLM, R. R. (I). See Roll of Honor (page 113).
- MALONE, C. B. (VI) Capt., F. A. 1st Lt., Ord. Dept., 8 June '17; 2d Lt., Cav., 8 Aug.; 1st Lt., 1 Sept.; Capt., F. A., 28 Feb. '18. Frankford Arsenal, 14 July '17; 83d F. A., Camp Fremont, Calif., 4 Sept.; Inst., Material Dept., School of Fire, Ft. Sill, Okla., Sept. '18—Jan. '19. See Civilian Record.
- MARION, H. L. (VI) Flying Cadet, A. S. A., Nov. '18. School of Military Aeronautics, Cornell University, '17; Barracks, No. 52, Kelly Field, Texas, Nov. '18.
- MILLER, L. B. (VI) Sgt. 1 cl., Sig. C. Pvt., Sig. C., 10 Apr. '18; Corp., July; Sgt., Sept.; Sgt. 1 cl., Feb. '19. 4 29th Serv. Co., Radio Laboratories, Camp Vail, N. J.
- MITCHELL, R. W. (V) 2d Lt., Ord. Corps., 14 Dec. '17. Research work, Washington, D. C., Frankford Arsenal, and Ft. Myer, in connection with removing metal fouling from rifle barrels; Ord. Inspector, Buffalo and Niagara Falls, N. Y., at electrochemical plants making ammonium sulphate, 28 Feb. '18—27 May '19.

REGISTER OF MILITARY RECORDS

- MOHR, K. A., 2d Lt., F. A. Entered Service, 27 Aug. '17. A. E. F., 7 Aug. '18—24 Mch. '19; 317th F. A.
- MONAHAN, W. H. (VI) Corp., Aviation Sect., Sig. C. School of Military Aeronautics, Princeton University, '17; Sq. 2, Dallas Field, Texas, '18; 241st Aero Sq., Dorr Field, Arcadia, Fla., Jan. '19. Could not obtain commission as eyesight failed.
- MOODY, P. W. (VI) Pvt., A. S. A. S. Mechanics School, 7 Oct. '18; 8th Co., 2d Bn., Depot Brig., Camp Devens, Mass., 31 Dec. '18—4 Jan. '19.
- MORRISON, A. S. (II) Capt., Ord. Corps. 1st Lt., Ord. Corps., 2 July '17; Capt., 2 Aug. '19. Inspection Div., Ord. Dept., Washington, D. C., 2 July '17; Ord. Inspector, Canadian Ingersoll Rand Co., Sherbrooke, P. Q., Canada, May '18.
- MORSE, C. L. (I) 2d Lt., A. S. (R. M. A.) Mch. '18. School of Military Aeronautics, Cornell University, 17 July '17; Gerstner Field, Lake Charles, La., 15 Dec.; Camp Dick, Texas, Mch. '18; Pilot Inst. in Aerial Gunnery, Hicks Field, 1 June; School Aeronautical Engr., M. I. T., 1 Oct.; Pilot and Aeronautical Structural Engr., Technical Sect., A. S., McCook Field, Ohio, 7 Feb. '19.
- MUDGE, A. W., JR. (V) Capt., Inf. 2d Lt., Inf., '17; Capt., '18. Co. D, 22d Inf., Potomac Park, Washington, D. C., '17.
- MYRICK, F. L. (II) Corp., Inf. 2 Apr. '18. Hq. Co., 320th Inf., 80th Div., 2 Apr. '18. A. E. F., 30 May '18—20 May '19; Pioneer Platoon attached to Royal (British) Engrs., Albert on the Somme, Aug.; Arras, 21—28 Aug. Rejoined Regiment, Nancois-le-Petit, 28 Aug. St. Mihiel Offensive; Meuse-Argonne Offensive, 26 Sept.—7 Nov. '18.
- NELSON, A. L. (VI) Lt., C. E. C., U. S. N. Lt. (j. g.) U. S. N., 27 Dec. '17; Lt., 1 July '18. Naval Academy, Annapolis, Md., 27 Dec. '17; U. S. Submarine Base, New London, Conn., 12 Feb.—Sept. '19.
- NEWTON, J. B. (Sp.) Capt., F. A. 301st Trench Mortar Btry., 151st F. A., Camp Devens, Mass., 14 May '17. A. E. F., 16 July '18—1 Feb. '19.
- NIEMANN, HENRY (I) Lt., C. E. C., U. S. N. Lt. (j. g.), C. E. C., U. S. N., 15 June '17; Lt., 15 Oct. Naval Constructor, Norfolk Navy Yard, Va., Sept. '17; Naval Operating Base, Hampton Roads, Va., May '18.
- NIXON, G. F. (IV) Sgt. 1 cl., A. S., 15 Dec. '17. 482d Aero Cons. Sq., Newport News, Va., Dec. '17. A. E. F., 7 Mch. '18—7 Mch. '19; constructed airstrips at Autreville and Trampont near Colomby-les-Belles, (Vosges).
- NORBERG, E. P. (IV) Pvt., C. A. C. 1st Co., Officers' Class, Ft. MacArthur, San Pedro, Calif., 28 Oct.—13 Dec. '18. See Civilian Record.
- NORTON, O. G. (II) Capt., A. S. 1st Lt., Aviation Sect., Sig. C., 15 Dec. '17; Capt. (T), A. S., 21 Feb. '19. A. E. F., 15 Dec. '17—20 Oct. '19; Engine Div., Technical Sect., A. S., Paris, 15 Dec. '17; Liaison Officer, Villacoublay Experimental Field and Renault Factory, testing Liberty Motors, 22 Feb. '18; Officer in Charge, Engine Test Plant, Experimental Field, Choisy-le-Roi, July; Liaison Officer with French Technical Service, installing Liberty Motors in French Army Aeroplanes, July '19. See Civilian Record.
- NYE, A. F. (IV) 1st Lt., F. A. Pvt., Inf., 8 Sept. '17; Corp., 22 Sept.; Sgt., 1 Feb. '18; 2d Lt., F. A., 31 Aug.; 1st Lt., 23 Oct. Co. F, 302d Inf., 76th Div., Camp Devens, Mass., 8 Sept. '17; Asst. Regt. Inst., Automatic Rifle School, Feb. '18; Arty., Off. Tr. Sch., Camp Taylor, Ky., 24 June; Btry. F, 13th Regt., F. A. Repl. Depot, Camp Jackson, S. C., 31 Aug.; C. O., Btry. E, 13th Regt., F. A. Repl. Depot, 23 Oct.—23 Dec. '18.
- O'DONNELL, OTTOMAR (III) Maj., F. A. 2d Lt., F. A., July '16; 1st Lt.; Capt.; Maj.; 5th F. A., Jan. '17. A. E. F., and Germany, July '17—July '19; Inst. in Telephone and Wireless, Arty. Training Camps, France; with 1st Div., Germany, Dec. '18.
- ORTH, W. A. (IV) 1st Lt., Engrs. Sgt., Engrs., '17; 1st Lt., Mch. '18. Off. Tr. Camp, Camp Lee, Va., Mch. '18. Co. D, 210th Engrs., Apr. '18—Jan. '19.
- OSBORN, S. H. (VII) 1st Lt., M. C. '17. Army Medical School, Washington, D. C., '18. A. E. F., Apr. '18—'19. Attached West Riding Field Ambulance, B. E. F., July '18; Central Medical Dept. Laboratory, Dec.; attached Military Police, Nancy, Feb. '19.
- OTIS, S. S. (IV) Ensign, U. S. N. R. F., 25 June '17. Great Lakes Naval Training Station, 25 June '17; Asst. Navigator, U.S.S. Hannibal, 16 Oct. '17; U.S.S. Castine, 10 Jan.—Feb. '19; U. S. Naval Base, Plymouth, England. '18—'19. (Page 236.)
- PARSONS, F. E. (II) Pvt. 1 cl., Sn. C. Driver, American Field Service, 15 Aug. '17; Pvt. 1 cl., Sn. C., U. S. A., 2 Sept. '17. France and Germany, 15 Aug. '17—22 Apr. '19; S.S.U. 639. St. Quentin Sector, 19 Aug. '17; Suippes Sector (Champagne), 1 Nov.; Somme Defensive, 30 Mch. '18; Montdidier Sector, 7 Apr.; Montdidier-Noyon Defensive, 9 June; Ressons-sur-Metz Sector, 4 July; Champagne-Marne Defensive, 16 July; Aisne-Marne Offensive, 8 July; Verdun Sector, 19 Aug.; Meuse-Argonne Offensive, 15 Oct.—4 Nov.; Army of Occupation attached to 1st Colonial Div., Foreign Legion (French). Cited by Marshal Petain for work in Montdidier-Noyon Defensive and in the Battle of the Marne, and in Orders from the Commanding General, 18th Div. (French) and the Commanding General 7th French Army. (Page 288.)
- *PATTEN, H. K. See Roll of Honor (page 118).
- PATTON, L. T. (VI) 1st Lt., Engrs. 2d Lt., Engrs., 15 May '17; 1st Lt., 10 June '18. Co. B, 113th Engrs., 38th and 7th Divs., Camp Hattiesburg, Miss., 15 May '17. A. E. F., 15 Sept. '18—19 June '19. Saizerais, Meurthe et Moselle, Apr., '19.
- PEAKES, G. L. (XIV) C. Q. M., U. S. N. R. F. (A). Naval Aviation Detachment, M. I. T., 20 July '18—4 Jan. '19.

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- PERIN, D. W. (VI) Sgt., Sig. E. R. C., 14 Dec. '17. Stationed at Radio Laboratories, Sig. C., Washington, D. C. and Camp Vail, N. J., working on radio telephones for aeroplanes, 14 Dec. '17—Mch. '19.
- PICKERING, H. B. (I) Pvt., C. W. S. C. A. C., Aug. '17; transferred to Ord. Dept. and later to C. W. S. Co. C, 2d Bn., C. W. S., Edgewood Arsenal, Md. See Civilian Record.
- PINKHAM, M. B. (I) 2d Lt., C. A. C. Pvt., C. W. S., 9 Apr. '18; transferred to C. A. Off. Tr. Sch., 10 Oct.; 2d Lt., C. A. C., Feb. '19. Ft. Monroe, Va., 10 Oct. '18.
- PIZA, ST. E. T. (IV) Pvt., Inf. 4th Off. Tr. Camp, Camp Devens, Mass., Apr. '18; rejected on physical examination. Rejected twelve times in different branches of the service; taken in draft for limited service, 13 Sept. '18; 9th Co., 23 Recruit Bn., Camp Syracuse, N. Y.; had influenza, Gen. Hosp. No. 5, Oswego, N. Y.; discharged from Camp Dix, N. J., 13 Dec. '18. See Civilian Record.
- POND, T. C. (X) 1st Lt., F. A. Rhode Island National Guard, Apr. '16; mustered into Federal Service, July '17; 1st Lt., F. A., July '17. Btry. A. R. I. National Guard, Mexican Border, July '16; Ft. Myer, Va., Nov. '17; Camp Lee, Va., Dec. '17; Inst., School of Fire, Ft. Sill, Okla.
- POTTER, JESSE (I) 1st Lt., Inf. 2d Lt., Inf., '17; 1st Lt., 53d Co., 159th Depot Brig., Camp Taylor, Ky., '17; Camp Hancock, Ga.; disch. 11 Jan. '19.
- *PRESCOTT, L. W. (II). See Roll of Honor (page 92).
- PROCTOR, E. E. (X) 2d Lt., C. A. C. Entered Service, 15 June '18; Ft. Monroe, Va., Sept. '18; Camp Eustis, Va., Nov.
- PURINTON, F. G. (II) Capt., Ord. Corps. 1st Lt., Ord. Corps., 1 Aug. '17; Capt., 26 Aug. '18. M. G. School, Springfield Arsenal, 1 Aug. '17; Engr. Div., Ord. Dept., Washington, D. C., Oct. A. E. F., 29 Oct. '17—21 Mch. '18; in Paris, studying development on airplane cannon. Cannon Unit, Aircraft Armament Sect., Ord. Dept., Washington, D. C., Mch. '18; Chief of Unit, June—Dec. '18.
- QUIRK, L. F. (I) 2d Lt., F. A. Off. Tr. Camp, Camp Wadsworth, S. C., '18. A. E. F., '18—'19; 17th F. A., Hq., 3d Army Corps, Mch. '19.
- REYNOLDS, R. W. (VI) 1st Lt., Inf. Pvt., 15 May '16; Corp., 6 Dec. '17; Sgt., 6 Feb. '17; 1st Lt., 15 Dec. '17, Atlanta, Ga., 28 Mch.—27 Aug. '17; Res. Off. Tr. Camp, Chickamauga, Ga., 27 Aug.—27 Nov. '17; Co. H. 122d Inf., Macon, Ga., 15 Dec. '17—15 Sept. '18. A. E. F., 30 Oct. '18—19 June '19; Le Mans; Co. I, 312th Inf., Alise Ste. Reine (Cote d'Or), 6 Dec. '18; Semur (Cote d'Or) 15 Mch; Bordeaux, 5 Apr.—19 June.
- RIVERS, W. B. (IV) 2d Lt., Aviation Sect., Sig. R. C., Dec. '17. Engr. Officer, Rich Field, Texas, Apr. '18.
- ROGERS, D. P. (II) Lt., British Red Cross, before Nov. '17. 1st British Ambulance Corps, 1st Sect., attached 3d Army Corps (Italian), War Zone, May '18.
- ROSENTHAL, C. H. (X) Sgt. 1 cl., C. W. S. Pvt., Inf., Oct. '17; transferred to C. W. S., Jan '18; Sgt. 1 cl., July. American University Laboratories, Washington, D. C., June '18.
- ROSSELL, H. E. (IV) Lt. Comdr., C. C., U. S. N. Lt., C. C., U. S. N., '17; Lt. Comdr., '18. Navy Dept., Washington, D. C., Jan. '18; Navy Yard, Brooklyn, N. Y., Mch. '19.
- ROY, K. W. (II) 2d Lt., C. W. S. Sgt., Sn. C., 24 Sept. '17; Sgt. 1 cl., Nov.; 2d Lt., C. W. S., 18 Oct. '18. Gas Defense Service, Sn. C., Washington, D. C., 24 Sept. '17. A. E. F., 31 Oct. '17—15 Apr. '19; 1st Gas Unit, Gas Dump No. 2, France, Nov. '17; Royal Engrs., Laboratory, University of London, Jan. '18; Officer in Charge, canister filling of American gas masks, Birmingham, May; Hq., C. W. S., Tours, Oct.; Repl. Camp, St. Aignan, Jan. '19.
- RUDOLF, H. J. G. (IX) with Royal Flying Corps (British), '17.
- RUSSELL, W. S. (IV) 2d Lt., C. A. C. Pvt., Engrs., 29 June '17; transferred to F. A., Mch. '18; 2d Lt., C. A. C., 31 Oct. Co. B, 101st Engrs., 29 June '17. A. E. F., 24 Sept. '17—10 Jan. '19; Arty. Draftsman, 5th F. A., Mch. '18; Saumur Arty. Sch., 1 Aug. Ansanville Sector, Lorraine Front, 13 Mch.—4 Apr.; Montdidier Sector, 23 Apr.—7 July; Montdidier Noyon Defensive; Aisne Marne Offensive (Soissons). (Page 179.)
- RYON, T. B. (VI) 2d Lt., F. A. Pvt., Inf., 24 June, '18; 2d Lt., F. A. 5 Dec. '18.
- SABIN, H. P. (IV) Maj., Inf. Pvt., Off. Tr. Camp, 11 May '17; Capt., Inf., Aug.; Maj., 1 Sept. '18. 1st Off. Tr. Camp, Ft. Riley, Kan. 11 May '17; M. G. Co., 355th Inf., Sept.; M. G. School, Ft. Sill, Okla., Mch. '18. A. E. F., 16 June '18—11 July '19; training area, Vosges, July; Temporary Brig. Adj., 15 Aug.; Brig. Adj., 178th Brig., 1 Sept.; Asst. Divisional Inspector, Div. Hq., 25 Oct., Arty. Tr. Center, 8 Mch. '19. St. Mihiel Offensive, 3 Aug.—7 Oct. '18; Meuse-Argonne Offensive, 20 Oct.—11 Nov.; Army of Occupation, Trier, Germany.
- SAUCHELLI, VINCENT (I) Pvt., Malay States Volunteer Rifles. Garrison duty in the Federated Malay States, 12 Apr. '17. See Civilian Record.
- SCHOELKOPF, A. H. (VI) reported Engr. Depot, Norfolk, Va., '17.
- SCHOEPE, EDWARD (IV) 1st Lt., A. S. P. 2d Lt., Sig. C., 17 Jan. '18; 1st Lt., A. S. P., 25 Aug. Asst. Chief Balloon Production Branch, Aircraft Production, Washington, D. C., in charge of production of hydrogen gas and gas equipment, 17 Jan. '18; Chief, Balloon Production Branch; Member of Comm. with War Industries Bd., for development and production of hydrogen and later helium for the Army and Navy.
- SCULLY, F. P. (I) Lt. (j. g.), U. S. N. R. F. (A). Sea. 2 cl., U. S. N. R. F., 23 Oct. '17; Ensign, U. S. N. R. F. (A), 11 Jan. '18; Lt. (j. g.), 1 Apr. Naval Aviation Ground School, M. I. T., 23 Oct. '17; Curtiss Aeroplane and Motor Corp., Buffalo, N. Y., 8 Dec.; Dayton Wright Airplane Co., Dayton, Ohio, 1 June '18; Bu. Steam Engr., Div. of Aeronautics, Navy Depart., Washington, D. C., 7 Nov. '18—4 Apr. '19.
- SEARS, L. R. (I) Corp., Engrs., 7 July '18. Co. G, 22d Engrs. (Ry.) N. A. A. E. F., 7 July '18—22 Aug. '19

REGISTER OF MILITARY RECORDS

- SHEILS, H. C. (I) Ensign, U. S. N. R. F. (A). Sea. 2c, U. S. N. R. F., 10 Dec. '17; C. Q. M., 1 Jan. '18; Ensign, 19 Mch. Naval Aviation Ground School, M. I. T., 10 Dec. '17; Buffalo, N. Y., Feb. '18; Keyport, N. J., Apr. '18—Mch. '19.
- SMALL, P. L. (IV) 2d Lt., F. A. Pvt., F. A., 2 Oct. '17; Corp., 5 Oct.; Sgt., 30 Nov.; 2d Lt., F. A., 1 June '18. 323d F. A., 2 Oct. '17; 3d Off. Tr. Camp, Camp Sherman, Ohio, 5 Jan. '18. Detached Service as Balloon Observer, 60th Balloon Co.; Member, Fine Arts Comm., Paris, Feb. '19; in charge of pencil sketching, Fine Arts School, Bellevue, Paris. St. Mihiel Offensive. (Page 226.)
- SMITH, C. L. (VI) 2d Lt., Ord. R. C. Pvt., Ord. Corps, 1 May '18; Sgt., Sept.; Ord. Sgt., Nov.; 2d Lt., Ord. R. C. June '19. Inst. School of Arms, 37th Div., 1 May '18—June '19. See Civilian Record.
- SMITH, W. H. (I) Lt., C. E. C., U. S. N. Lt. (j. g.), C. E. C., U. S. N., 15 June '17; Lt. (T), 15 Oct. '17. Bu. Yards and Docks, Washington, D. C., '17; Asst. Public Works Officer, Navy Yard, Norfolk, Va., 13 Oct. '17.
- *SOMMER, H. O. (VII). See Roll of Honor (page 97).
- SPEAR, T. F. (X) 2d Lt., C. W. S. Hastings Plant, Edgewood Arsenal, Gas Offensive Sect., C. W. S., overseeing design, construction, and equipment of furnaces for producing mustard gas, 13 Sept.—Nov. '18. See Civilian Record.
- STAUB, J. F. (IV) Lt. (j. g.), U. S. N. R. F. (A). Sea. 2 cl., U. S. N. R. F., 27 July '17; Ensign, U. S. N. R. F. (A), 24 Jan. '08; Lt. (j. g.), 1 Oct. Naval Aviation Ground School, M. I. T., 27 July '17; Flying Training, Naval Air Station, Pensacola, Fla., Oct.; Aerial Gunnery Training, Naval Detachment, Taliaferro Field, Texas, Feb. '18. A. E. F., Mch.—Dec. '18; U. S. Naval Air Station, Killingholme, Mch.—Dec.; performed submarine search, convoy and mine laying escort and reconnaissance patrols over North Sea; Junior Aide to Commanding Officer, 1 Oct. Letter of Commendation from British Admiralty for successful bombing attack against an enemy submarine, 19 July '18. (Page 235.)
- STEERE, T. I., Maj., C. A. C. Lt., C. A. C., '17; Capt., '18; Maj. '19. Presidio, Calif., '17; Ft. Rosecranz, San Diego, Calif., Apr. '19.
- STELLE, E. H. (I) 2d Lt., Engrs. Mr. Gun., 1st C. A., New York National Guard, 15 July '17; 2d Lt., Engrs., 1 Sept. Topographic Military Mapping, S. C., Sept. '17; Georgia, Jan. '18; Camp Humphreys, Va., Sept.—Dec. '18.
- STEWART, J. S. (II) 1st Lt., Ord. Corps, 15 Aug. '17. A. E. F., 1 Dec. '17—22 Jan. '19; did experimental work on machine guns for airplanes; attached Air Service six mos.; M. G. Officer with American troops on British front four months; Office of Chief Ord. Officer, A. E. F.
- STEWART, W. J. (X) 2d Lt., A. S. A. Pvt., 27 Sept. '17; 2d Lt., Aviation Sect., Sig. C., 10 Mch. '18; later transferred to A. S. Ground School of Military Aeronautics, Princeton, N. J., 27 Sept. '17; flying instruction, Rich Field, Texas, 28 Nov.; Inst. in Flying, Camp Dick, Texas, 23 Mch. '18; Pilot Inst., Aerial Gunnery for Observers, Selridge Field, Mich., 8 Apr.; Asst. to Officer in Charge of Flying, 15 Aug.; instruction in reconnaissance, Langley Field, Va., 8 Oct.; Taliaferro Field, Texas, 28 Nov.—13 Dec. '18.
- STONE, NELSON (I) 2d Lt., F. A. Entered Service, 27 Aug. '17. A. E. F., 10 Jan. '18—10 July '19 with 6th F. A.; Inst. Arty. School, Saumur; Btry. B, 6th F. A., Meuse-Argonne Offensive; Army of Occupation, Coblenz, Jan. '19.
- THOMAS, W. S. (II) Lt., U. S. N. R. F. (A). Lt. (j. g.), July '18; Lt., 1 Apr. '19. Naval Aviation detachment. M. I. T., 20 Nov. '17; Seattle, Wash., June '18; Great Lakes Naval Training Station, Ill., 1 Oct.; Pensacola, Fla., 1 Nov. '18. See Civilian Record.
- THOMSON, MALCOLM (II) Sgt., 1 cl., A. S. P. Pvt., C. A. C., 10 Dec. '17; Aviation Sect., Sig. C., Apr. '18, Sgt., Sept.; Sgt. 1 cl., 10 Nov. 2d Hq. Co., C. A. C., Boston, Mass., 10 Dec. '17; Specialists' School, Mch. '18; Bu. of Aircraft Production, Bu. of Standards, Washington, D. C., Apr. '17—17 Dec. '18.
- *THYNG, E. F. See Roll of Honor. (Page 125.)
- TOBEY, J. A. (IX) 1st Lt., Sn. C. 2d Lt., U. S. Public Health Service; 1st Lt., Sn. C., 5 Mch. '18. Entered service, 4 Nov. '17; Sn. Officer, Gerstner Field, La., 28 Apr. '18; Detachment Comdr. and Sn. Engr., Charleston Port Terminal, S. C., 8 July; Sn. Engr., Wilbur Wright Field, Ohio, 19 Dec. '18—17 Feb. '19.
- TOLMAN, S. L. (XI) 2d Lt., Sn. C., 29 May '18. Camp Greenleaf, Ga., 29 May '18; C. O., Sn. C., Det. Camp Lee, Va., 27 July; C. O., Sn. Sqd. No. 122, Camp Crane, Pa., 25 Oct.; Camp Pike, Ark., 27 Nov. '18—2 Jan. '19.
- TOMKINS, CALVIN, JR., 2d Lt. A. S. A. In U. S. N. R. F., '17; transferred to A. S. A., '18.
- TRAVIS, L. L. (VI) 2d Lt., Ord. Corps. Pvt., Ord. Corps, 10 Dec. '17; Ord. Sgt., 1 Feb. '18; 2d Lt., 12 Oct. '18. Co. D, 163d Depot Brig., Camp Dodge, Iowa, 10 Dec. '17; Camp Merritt, N. J. A. E. F., 28 Mch., '18—26 Jan. '19; with S. O. S. and 2d Army Hq.
- TURRELL, H. N., JR. (VI) 2d Lt., Engrs. Pvt., Engrs., 2 Nov. '17; 2d Lt., 30 May '18. Co. C, 316th Field Sig. Bn., 2 Nov. '17; 56th Engrs. (Searchlight Regt.), 15 Feb. '18. A. E. F., 11 Aug. '18—11 Mch. '19.
- URQUHART, GEORGE (X) Capt., C. W. S. 1st Lt., Sn. C., 8 Jan. '18; transferred to C. W. S., 1 Aug.; Capt., C. W. S., 4 Nov. Gas Defense Service, 8 Jan. '18; mfg. horse masks; Asst. to Officer in Charge of mfr. of gas absorbing chemicals, Nov. '18—31 Mch. '19.
- *VIGNAL, P. G. (II). See Roll of Honor (pages 88 and 159).
- WALL, F. J. (V) 2d Lt., F. A. Off. Tr. Camp, Plattsburg, N. Y., '17; 2d Btry., F. A., Nov. A. E. F., '18—'19; with 301st Trench Mortar Btry., 76th Div.
- WALTER, A. U. (II) 1st Lt., F. A. F. A., Maryland National Guard; 2d Off. Tr. Camp, Ft. Myer, July '18; Btry. C, 315th F. A., Jan. '18. A. E. F., May '18—May '19. St. Mihiel Offensive; Meuse-Argonne Offensive.

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- WARREN, R. A. (VI) Ensign, U. S. N. R. F. (A). C. Q. M., U. S. N. R. F. (A), Ensign, 4 Jan. '19. Course for Airplane Inspectors, M.I.T., 21 May '18; Naval Inspector, Curtiss Aeroplane Co., Buffalo, N. Y., and Burgess Co., Marblehead, Mass., inspecting flying boats. See Civilian Record.
- WEAVER, E. A. (VI) (XIV) with Co. 11, New England Detachment, Plattsburg, N. Y., June '17.
- WEAVER, E. J. (II) 1st Lt., Engrs., Dec. '17. Co. A, 301st Engrs., Camp Devens, Mass. A. E. F., '18.
- WEIL, N. S. (I) 1st Lt., F. A. Entered Service, 5 Aug. '17; Hq. Co., 133d F. A., 5 Aug. '17; Hq., 61st F. A., Brig., Feb. '18. A. E. F., 4 July '18—4 Aug. '19.
- WELLS, H. H. (IV) 2d Lt., Aviation Sect., Sig. R. C. Aviation Field, North Island, San Diego, Calif., '17; Rockwell Field, May '18.
- WERLICH, McCENEY (X) 2d Lt., Q. M. C. Enlisted in France, 6 Oct. '18; attached to Staff of General Commanding 18th French Region (Base Sections 2 and 7, Bordeaux and La Rochelle) in charge of Franco-American relations, 6 Oct. '18—6 Apr. '19. See Civilian Record.
- WETHERALD, R. W. reported in Curtiss School of Aviation, Newport News, Va.
- WHITALL, C. W. (VI) Corp., Engrs. Entered service, 27 June '18. A. E. F., 5 Sept. '18—5 July '19; with 312th Engrs.
- WHITE, D. H. (X) 1st Lt., C. W. S. Pvt., C. W. S., 20 Mch. '18; Sgt., 1 July; 2d Lt., 8 Aug.; 1st Lt., 18 Oct. American University, Washington, D. C., and Edgewood Arsenal, Md.
- WHITWELL, G. E. (XIV) reported Pvt., Aviation Sect., Sig. C., 4th Prov. Co., Madison Barracks, N. Y.
- WILLIAMS, C. W. (I) Ensign (T) U. S. N. C. M. M., U. S. N. R. F., 5 July '17; Ensign, U. S. N. R. F., 13 May '18; Ensign (T), U. S. N., 18 Sept. Navy Yard, Philadelphia, Pa., 5 July '17; Naval Academy, Annapolis, Md., 13 May '18; Submarine Base, New London, Conn., 18 Sept.; Ex-Officer, U.S.S. D-3, Oct. '18—4 July '19.
- WILLIAMS, J. E. (II) Lt., U. S. N. R. F. U.S. Destroyer McCall, Apr., '18; U.S.S. Greer, Apr., '19.
- WISEMAN, R. C. (IV) 2d Lt., Engrs., 507th Service Bn., Engrs., Camp Travis, Texas, May '17. A. E. F., Feb. '18—'19; transferred to Claims Service, Jan. '19; Renting, Requisitions, and Claims Service, Vittel, Vosges, Apr.
- WOODFALL, H. C. (VII) Scientific Asst. (Grade of 2d Lt.) later Asst. Sn. Engr. (1st Lt.), U. S. Public Health Service, Treasury Dept., at Camp Wheeler, Ga., Camp Wadsworth, S. C., and Camp Polk, N. C., protecting health of troops while away from camps.
- WOOLEY, G. T., JR. (II) Lt. (j. g.) U. S. N. R. F. M. M. 2 cl., N. N. V., 6 Apr. '17; M. M. 1 cl., 6 May; Ensign U. S. N. R. F., 10 Apr. '18; Lt. (j. g.) 1 Oct. U.S.S. Wisconsin, 8 Apr. '17; U.S.S. Oklahoma, 6 May '17; Naval Aviation Detachment, M. I. T., 4 Dec.; Curtiss Aeroplane and Motor Co., Buffalo, N. Y., 26 Jan. '18; Curtiss Engineering Corp., Garden City, L. I., N. Y., constructing N-C-1, 2, 3, and 4, 10 Apr. '18—'19. (Page 244.)
- WORTHINGTON, HAROLD (VI) 1st Lt., F. A. Pvt., Off. Tr. Camp., May '17; 2d Lt., F. A., Aug.; 1st Lt.—25 Aug. '18. A. E. F., 7 Sept. '17—17 Mch. '19; Sec., 1st Corps Arty. School, Grandcourt; Orienting Officer, Btry. A, 5th F. A.; Asst. Operations Officer, 1st F. A. Brig.; Operations Officer, 1st and 4th Army Corps, Cantigny. Montdidier-Noyon Defensive; Champagne-Marne Defensive; Château-Thierry; St. Mihiel Offensive; Army of Occupation.
- YOUNG, L. H. (II) C. M. M., U. S. N. R. F. (A). M. M. 2 cl., U. S. N. R. F. (A), 27 Apr. '17; M. M. 1 cl., 20 Aug.; C. M. M. (A), 1 Jan. '18. Squantum Air Station, 27 Apr. '17; Hampton Roads Air Station, 20 Aug.; Packard Motor Co., 10 Jan. '18; Columbia University, 1 Dec.
- ZEPFLER, L. H. (V) Corp., C. W. S. Pvt., C. A. C., Nov. '17; Corp., Dec.; transferred to C. W. S., 17 May '18. Btry. C, 55th C. A. C., Nov. '17. A. E. F., Mch. '18—Feb. '19; training with 155mm. guns; Gas Research Laboratory, Paris.

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- AHEARN, R. L. (I) 1st Lt., Sn. C. Pvt., M. D., Feb. '18; Sgt., 10 June; Sgt. 1 cl., 10 Aug.; 1st Lt., Sn. C. 29 Sept. Base Hospital No. 7, Camp Devens, Mass., Feb. '18. A. E. F., July '18—Mch. '19; Sn. Officer Base Hosp. No. 7.
- ALFARO-MORAN, RAFAEL (I) 2d Lt., Engrs. Corp., Engrs., '18; Sgt.; 2d Lt., A. E. F. '18—'19; Co. B, 14th Engrs. (Ry.); Engr. Off. Candidate Sch., Oct. '18; Office of Technical Representative, London, Jan. '19.
- ALLEN, G. P. (V) Pvt., A. S. (Medical). Medical Research Laboratory, Hazelhurst Field, Mineola, L. I., 9 Sept. '18—10 Mch. '19.
- ALLEN, R. M. (IV) Sous-Lt., French Army. Refused four times by the American Army, Pvt., later Sgt., "Tech Unit," American Field Service, June '17; Pvt., Sqd. C, Sect. 526, 40th F. A., 40th Div., 32d Army Corps (French), '18; Cadet, Mch.; Sous-Lt. Aisne; Chemin des Dames; Ft. Malmaison, '17; Champagne; Ardennes; Marne between Château-Thierry and Rheims; Champenoux; Meuse-Argonne Offensive. Croix de Guerre with Bronze Star. His Regiment received the Médaille Militaire. (Pages 77, 80 and 147.)
- ATCHISON, T. C. (XIV) 2d Lt., A. S. A. Pvt., Aviation Sect., Sig. C., 6 July '17; 2d Lt., A. S. A., 5 Feb. '18. Aviation Sect., Sig. E. R. C., 6 July '17; U. S. Aeronautical Ground School, Ohio State University, 28 Aug.; 80th Canadian Tr. Sq., Royal Flying Corps., Canada, 20 Oct.; 139th U. S. Aero Sq., Texas and Florida. A. E. F., 5 Mch. '18—1 Feb. '19; Pilot Inst., Observation School, Tours, 30 June '18—17 Jan. '19.
- BAGBY, R. B. (II) 1st Lt., F. A. Pvt., Off. Tr. Camp, May '17; 2d Lt., F. A., Aug.; 1st Lt., 9 Feb. '18. 21st F. A., Aug. '17. A. E. F., Mch. '18—Aug. '19; Observer, F. A., attached 88th Aero Sq. Champagne-Marne Defensive; Aisne-Marne Offensive; Oise-Aisne Offensive; St. Mihiel Offensive; Meuse-Argonne Offensive; Army of Occupation, Weissenhurn, Germany, June '19. Distinguished Service Cross; Croix de Guerre; Belgian Order of the Crown. (Page 130.)

REGISTER OF MILITARY RECORDS

- BAKER, N. D. (III) 2d Lt., Inf. O. R. C. Entered Service, 15 May '17; 102d M. G. Bn. A. E. F., 4 Oct. '17—12 Dec. '18; Asst. Provost Marshal, 10 Jan. '18.
- BAKER, P. C. (II) 2d Lt., A. S. Entered Service, 31 Oct. '17; Cons. Div., A. S., 6 Nov. '17. A. E. F., 22 Nov. '17—9 Feb. '19; 73d Aero Cons. Sq., Hq., Cons. Div., A. S., Paris; Airplane Prod. Div., Paris, Tours, and Romorantin. See Civilian Record.
- BARKER, J. W. (VI) Maj., C. A. C. 2d Lt., C. A. C., Nov. '16; 1st Lt., Nov.; Capt. (T.), 5 Aug. '17; Capt., 9 Feb. '18; Maj., 26 Oct. '18. Btry. A, 63d C. A. C., Ft. Sill, Okla., '17. A. E. F., 13 July '18—'19; Arty. Repl. Regt., Le Courmeaux; Asst. Adj. General, Dist. of Paris, Mch. '19. Order of Danilo I (3d Class).
- BARKER, S. T. (XI) Lt., U. S. N. R. F. Lt. (j. g.), U. S. N. R. F., 7 Oct. '17; Lt., 27 Aug. '18. U. S. S. Surveyor, 7 Oct. '17; Ex. Officer, 27 Aug. '18; C. O., Feb. '19. In Mediterranean Sea, 8 Jan.—31 Dec. '18. Attack on Submarine U-52, 7 May '18; attack on U-39, 17 May.
- BARRETT, W. J. (II) 1st Lt., Ord. Corps. Entered Service, 1 June '17. Ammunition Sect., Small Arms Div., Ord. Dept., Washington, D. C., 17 Dec. '17; Instrument, Container and Machinery Sect., Inspection Div., May '18; Technical Staff, Instrument Sect., Inspection Div., 1 Jan. '19; Ord. Representative, Long Range Fire Control Bd., Ft. Hancock, Sandy Hook, N. J., May—June '19.
- BARRY, E. H. (II) Lt. (j. g.), U. S. N. R. F. Ensign, U. S. N. R. F. (A.), 22 Oct. '17 Lt. (j. g.), 23 Mch. '18. Bu. of Ord., Navy Dept., Washington, D. C., 22 Oct. '17; design of bomb sights, machine-gun sights, and development of Davis gun for aviation ordnance.
- BARTLETT, L. R., 1st Lt., Sn. C. Harvard-Technology School for Health Officers, '18. A. E. F., '18—'19; Central Medical Laboratories, Division of Food and Nutrition.
- BENNETT, H. R. (I) 2d Lt., A. S. Pvt., A. S., 25 June '17; 2d Lt., 25 Jan. '18. Sqd. B, Wright Branch Depot, 25 June '17; 2d Prov. Tr. Sq., Ellington Field, Houston, Texas, Jan. '18; Camp Dick, Texas. A. E. F., Sept. '18—Feb. '19.
- BENSON, H. S. (II) Sgt. 1 cl., F. A. Pvt., Inf., 20 Sept. '17; transferred to Aviation Sect., F. A., Sept. '18. Sig. C., 1 Dec.; Sgt. 1 cl., Sept. '18; 151st Depot Brig., 20 Sept. '17; 144th Aero Sq., Kelly Field, Texas, 1 Dec.; 42d Tr. Btry., F. A. Cent. Off. Tr. Sch., Camp Taylor, Ky., 11 Sept.—30 Nov. '18.
- BERGER, R. G. (V) Lt. (j. g.), U. S. N. Sea, U. S. N., 11 June '17; C. G. M., 1 Nov.; Ensign, 4 Jan. '18; Lt. (j. g.), 1 July '19. Naval Academy, Annapolis, Md., '17; Receiving Ship, New York, '19. Suggested a plan, afterwards adopted, for a "mystery ship."
- BERKE, S. R. (formerly Berkowitz), (II) Candidate Officer, F. A., 7 Nov. '18. See Civilian Record.
- BESLY, LEONARD (XV) 1st Lt., A. S. A. Pvt., M. D., 22 Apr. '17; 1st Lt., A. S. A., '18. Chicago Base Hosp. Unit, Apr. '17. A. E. F., 1 June '17—4 Apr. '19; Base Hosp. No. 12; transferred to A. S., and received a pilot's license.
- BICKFORD, H. L. (VI) Pvt., Cav. Entered Service, 26 Nov. '17; 5th Prov. Candidate Off. Bn. Hon. Disch. on account of physical disability, 15 Feb. '18. See Civilian Record.
- BINGER, W. D. (I) 2d Lt., A. S. Entered Service, 12 Jan. '18; Aero Cons. Sq., Morrison, Va., 16 Jan. A. E. F., 24 Feb. '18—3 Jan. '19; 468th Aero Cons. Sq., Air Production Center No. 2, Romorantin, 4 Mch. '18; Asst. Cons. Officer, later Acting Chief Cons. Officer, 2d Aviation Instruction Center, near Tours, 19 Mch.
- BLAIR, ALEXANDER (XI) Lt., Royal Engrs. (British). 211th Field Co., Royal Engrs., B. E. F., '17; unattached while in Officers Convalescent Hosp., Totnes, Devon, England, Mch. '19.
- BLAKNEY, R. B. (I) Capt., Chaplain's Corps. 1st Lt., Chaplain's Corps, 4 Oct. '18; Capt., 8 May '19. A. E. F., 8 Apr.—15 Aug. '19.
- BLANCHARD, WALLACE (VI) 2d Lt., C. A. O. R. C. Pvt., C. A. C., 15 May '18; 2d Lt., C. A. O. R. C., 6 Dec. '18. Camp Meade, Md., 15 May '18; Ft. Howard, Md., 15 Aug.; Ft. Monroe, Va., 26 Sept.—6 Dec. '18.
- BLANK, W. H. (I) 2d Lt., F. A. Pvt., F. A., Sept. '17; Corp., 31 Oct.; 2d Lt., F. A., July '18. 301st F. A., Camp Devens, Mass., Sept. '17; Hq. Co., 31 Oct.; 3d Off. Tr. Camp, 1 Jan. '18. A. E. F., 16 Apr. '18—13 Jan. '19; French Light Arty. School, Apr. '18; Heavy Arty., (French Howitzers), Angers, July; Anti-Aircraft Arty., Fort de Stains, Aug.; attached French Arty. Btry., Post 80, Nancy Front, Sept.; C. O., American Anti-Aircraft Btry. No. 2, in defense of Supply Center, Oct.; 3d Btry., 8th Anti-Aircraft Sector, C. A. C., Nov. '18.
- BLISS, M. W. (VI) 2d Lt., A. S. Pvt. 1 cl., Aviation Sect., Sig. C.; 2d Lt., A. S. A. E. F., Feb. '18—'19; 201st Aero Sq.; Technical Hq., A. S., Paris, Feb. '18.
- BOATWRIGHT, W. P. (VI) Capt., C. A. C. Ft. Monroe, Va., '17; A. E. F., '18.
- BOLTON, MEADE (IV) Pvt., F. A. 6th Observation Btry., F. A. Cent. Off. Tr. Sch., Camp Taylor, Ky., 6 Nov.—1 Dec. '18. See Civilian Record.
- BOWDITCH, W. I. (II) 2d Lt., A. S. A. Pvt. 1 cl., A. S., Nov. '17; 2d Lt., A. S. A., R. M. A., '18. U. S. School of Military Aeronautics, Cornell University, Ithaca, N. Y., 19 Nov. '17; Camp Dick, Texas, Apr. '18; Barron Field, Camp Worth, Texas, Oct. '18.
- BOYD, W. H. (I) 2d Lt., C. A. C. Pvt., C. A. C., 19 Mch. '18; 2d Lt., 25 Sept. '18. 4th Recruit Co., Ft. Slocum, N. Y., 19 Mch. '18; 26th Co., C. A., Ft. Greble, R. I., 24 Apr.; Off. Tr. Sch., Ft. Monroe, Va., 6 July; Orientation Course, C. A. Sch., Ft. Monroe, 25 Sept.; Orientation Officer, 34th Arty., C. A. C., Camp Eustis, Va., 5 Nov. '18. Disch., 17 Dec. '18.

TECHNOLOGY'S WAR RECORD

- BRESTH, ALEXANDER (XI) 1st Lt., Sn. C. 2d Lt., Sn. C., 1 Apr. '18, 1st Lt., 2 Nov. '18. Camp Sn. Engr., Camp Dodge, Iowa, 1 Apr. '18, and Camp Greenleaf, Ga., 2 July; C. O., Sn. C. Detachment, Camp Johnston, Fla., in charge of cons., and maintenance of draining ditches to control mosquito breeding. 1 Aug.; Camp Wadsworth, S. C., 29 Dec. '18—10 Feb. '19. See Civilian Record.
- BROAS, C. L. (I) 1st Lt., Engr. Entered Service, 15 May '17; Co. A, 3d Engrs., (Sappers), May '17; Ft. Mills Philippine Islands, Sept. '17—12 Feb. '19.
- BRODIE, J. L. (V) 2d Lt., Engrs. Sgt. 1 cl., Engrs., '17; 2d Lt., '18. Co. E, 101st Engrs., '17. A. E. F., '17—'19; Army Candidates' School, June '18; Asst. Post Engrs., Dec. Slightly wounded.
- BROOKS, P. N. (II) C. M. I., U. S. N. R. F. M. M. 2cl., U. S. N. R. F., 21 Apr. '17; M. M. 1cl., May '18; C. M. I., Sept. Student, Gas Motors, Columbia University, New York City, Apr. '17; Aviation Dept., Bu. Cons. and Repair, Navy Dept., Washington, D. C., June; testing Gas Motors (Aviation), Aero Engine Test Laboratories, Bu. Steam Engr., Sept.; test work on Liberty Motors, Pensacola, Fla., Mch. '18.
- BROPHY, T. D'A. (IV) Maj., C. A. R. C. 2d Lt., C. A. C., 23 Oct. '17; 1st Lt., 26 Feb. '18; Capt., 24 Sept.; Maj., C. A. R. C., 15 July '18. Engr. Div., Cons. Div., War Dept., Washington, D. C., 23 Oct. '17; Inst., C. A. Tr. Sch., Ft. Monroe, Va., 24 Mch. '18; Asst. to Chief of C. A., Washington, D. C., 1 Sept. '18—15 June '19.
- BROWN, R. G. (XIV) 1st Lt., C. W. S. 2d Lt., Sn. C., 28 Mch. '18; 1st Lt., C. W. S., 18 Oct. '18. Detached service, Charleston, West Va., 15 Apr. '18; Edgewood Arsenal, Md., 5 July '18—10 Jan. '19.
- BROWN, W. C. (VI) Lt., U. S. N. Ensign, Supply Corps, U. S. N., 20 June '17; Lt. (j. g.), July; Lt., 1 Feb. '18. Navy Base Hosp. No. 5, Brest, France, 13 Sept. '17—'20.
- BROWN, W. G. (VIII) Ensign, C. C., U. S. N. R. F. Sea. 2cl., U. S. N. R. F., 3 Jan. '18; C. Q. M., (A.), 3 Apr.; Ensign, C. C., 27 June '18. Aero Research Work, Bu. Cons. and Repair, Navy Dept., Washington, D. C., 3 Jan. '18; Asst. Naval Constructor, Navy Dept., 27 June '18.
- BRYANT, F. C. (I) Capt., Engrs. 1st Lt., Engrs., 13 Aug. '17; Capt., 23 Oct. '18. A. E. F., 13 Aug. '17—19 July '19; attached to British Army as Ry. Transportation Officer; St. Nazaire, six months; Inst., Ry. Transportation Off. Sch., Angers; Transportation Hq., Tours, Oct. '18; in charge of Ry. Transportation in Belgium and Holland, Hq., Antwerp, Belgium, May—July '19.
- BUCKNAM, F. W. (I) Sgt., Engrs. Corp., Engrs., 1 June '17; Sgt., 7 July '18. A. E. F., 27 July '17—27 Apr. '19; Track Foreman, Co. F, 14th Engrs., constructing narrow gauge Ry. at the front, and broad gauge at Calais; English Section, Off. Tr. Sch., Langres, Nov.; Co. B, 14th Engrs., Cannes, 1 Jan. '19. Somme Offensive; Aisne-Marne Offensive; Meuse-Argonne Offensive.
- BULFANT, T. A. (X) 2d Lt., C. W. S. Pvt., F. A., 18 Sept. '17; Corp., 1 Nov.; Sgt., C. W. S., 1 June '18; 2d Lt., 8 Nov. '18. Co. E, 312th F. A., Camp Meade, Md., 18 Sept. '17; Ord. Dept., Washington, D. C., 27 Jan. '18; American University Experiment Station, Washington, D. C., June '18—31 Mch. '19.
- BULLARD, B. S., Ensign, C. C., U. S. N. Asst. Naval Constructor, Navy Yard, Norfolk, Va.
- BURBANK, J. A. (I) Lt., U. S. N. Ensign, U. S. N. R. F., 6 Apr. '17; U. S. N., Sept.; Lt. (j. g.), U. S. N., Aug. '18; Lt., Oct. U. S. S. Question II (patrol boat) 6 Apr. '17; 1st Reserve Officers' Class, Naval Academy, Annapolis, Md., July; U. S. S. Alabama, Atlantic Fleet, Sept.; Inst., Electrical Engineering, Naval Academy, Sept. '18—June '19.
- BURKHARDT, H. H. (VI) 1st Lt., F. A., 15 Aug. '17. Btry. D, 2d Bn., 20th F. A., Camp Stanley, Texas, Aug. '17. A. E. F., Mch. '18—May '19; attached French Army Arty., Champagne-Marne Defensive, Capture of Frapelle; rejoined 20th F. A., 5th Div.; in charge Arty. Information Center, Marney (4th Corps), Oct.; Staff, Chief of Arty., 2d Army, Oct.; G—2, Advance G. H. Q., Trier, Dec.; G—2, Hq. 3d Army, Coblenz, Jan.—May '19. Champagne-Marne Defensive; Frapelle; St. Mihiel Offensive; Meuse-Argonne Offensive.
- BURNAP, R. S. (VI) Mr. Sig. Elec., Sig. C. Pvt., Aviation Sect., Sig. C., Mch. '18; Sgt., Sig. C., Aug.; Sgt. 1 cl., Oct.; Mr. Sig. Elec., Feb. '19. 122d Aero Sq., Mch. '18; Radio Research Laboratories, Camp Vail, N. J., Apr. '18—Mch. '19.
- BURNHAM, H. C. (X) Ensign, U. S. N. R. F. (A.). Sea., 1cl, U. S. N. R. F., 14 May '17; Ensign, (A.), Oct. '18. U. S. Submarine Chaser No. 324, 14 May '17; Patrol Duty, Naval Air Station, Rockaway Beach, N. Y., July '17—'19.
- BUXTON, P. H. (II) 2d Lt., A. S. Sgt., Ord. Corps, 7 Nov. '17; 2d Lt., 11 July '18. Transferred to A. S. Arty. Ammunition Sect., Ord. Dept., Frankford Arsenal, Philadelphia, Pa., 7 Nov. '17; Camp Hancock, Ga., Jan. '18. A. E. F., 30 July '18—9 June '19; Aircraft Armament Sect., A. S., Experimental Field, Choisy-le-Roi.
- BYRNE, L. R. (XIV) Ensign, U. S. N. R. F. Chief Electrician (R.), U. S. N. R. F., 6 Apr. '18; Ensign, Nov. Inst., Radio Telephony, Radio Telephone School, New London, Conn., 6 Apr. '18; Director of Education, Great Lakes Training Station, Mch.—July '19.
- CALDWELL, A. P., JR. (VI) 1st Lt., A. S. A. Pvt., Aviation Sect., Sig. C., 18 May '18; 1st Lt., A. S. A., 21 Aug. 814th Depot Aero Sq.; Inst., Airplanes Dept., School of Military Aeronautics, Princeton, N. J., 18 May—7 Dec. '18. See Civilian Record.
- CAMP, G. D. (I) 1st Lt., Engrs. 2d Lt., Engr. R. C., 30 Jan. '17; 1st Lt., 15 Aug. '17. Inst., Engr. Off. Tr. Camp, Leon Springs, Texas, 1 Sept. '17; Co. C, 316th Engrs., Camp Lewis, Wash., 12 Nov. A. E. F., France and Belgium, 10 July '18—6 Apr. '19; School Det., Engr. Course, 1st Corps School, Gondrecourt, 20 July; Army Bridge School, Langres, 20 Aug.; rejoined 316th Engrs., 91st Div., 1 Sept. '18. St. Mihiel Offensive; Meuse-Argonne Offensive, 26 Sept.—4 Oct.; Lys-Scheldt Offensive, 1-11 Nov. '18.

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- CARR, J. B. (VI) Capt., Engrs. 2d Lt., Engr. R. C., 2 Sept. '17; 1st Lt., Engrs., 8 July '18; Capt., 23 Aug. '18. Depot Engr. Repl. Troops, Ft. Leavenworth, Kansas; Camp Gordon, Ga.; Engr. Off. Tr. Camp, Camp Humphreys, Va.; Camp Lee, Va.; Camp Leach, Washington, D. C.; Schofield Barracks, Hawaii.
- CARSTENS, C. E. (III) 2d Lt., C. W. S. Pvt., Engrs., 19 Oct. '17; transferred to C. W. S., 30 Jan. '18; Sgt., C. W. S., 11 Mch.; Sgt., 1 June; 2d Lt., 20 Aug. '18. 23d Engrs., Camp Meade, Md., 19 Oct. '17; American University, Washington, D. C., 30 Jan. '18. A. E. F., 6 Sept. '18—17 July '19; Asst. Gas Officer, 1st Army Corps; Technical School, London, England, '19.
- CELLARIUS, C. F. (IV) 2d Lt., Inf. Pvt., Inf., 26 May '18; 2d Lt., 26 Aug. '18. 3d Co., 4th Off. Tr. Camp, Camp Sherman, Ohio, 26 May '18; Co. D, 326th M. G. Bn., 84th Div., 26 Aug. '18. A. E. F., 1 Sept. '18—18 July '19; 128th M. G. Bn., 35th Div., 13 Nov.; G-5, G. H. Q., 18 Jan.—6 Aug. '19; attached to Educational Comm., Fine Arts Dept., Bellevue, Paris, Jan. 19; Chief of Hospital Sect., in charge of Schools of Fine Arts in Hosp. Centers, Apr. '19.
- CHANDLER, W. S. (Sp.) Pvt., A. S. Army School of Aerial Photography, Rochester, N. Y., 28 Aug. '18. Unable to get into active service earlier on account of weak heart, accepted in limited service. See Civilian Record.
- CHOATE, D. H. (II) 2d Lt., F. A. Pvt., Off. Tr. Camp, 15 May '17; 2d Lt., F. A., 1 Aug. '17. Res. Off. Tr. Camp, Fort Sheridan, Ill., 15 May '17; Btry. A, 33d F. A., Camp Grant, Ill., 15 Aug.; F. A. Repl. Depot, Camp Jackson; Inst., School of Fire, Fort Sill, Okla.; 26th F. A., Camp McClellan, Ala.
- CLARKE, B. A. (VI) Corp., Engrs. Pvt., Engrs., Oct. '17; Corp., Nov. '18. Co. A, 25th Engrs., Camp Devens, Mass., 1 Oct. '17. A. E. F., 12 Nov. '17—18 Apr. '19; Military Works, St. Nazaire, 12 Nov.; Docks and Ry. Const., Bordeaux, Dec.; Co. A, 12th Engrs., Nov. '18; detached service, Beau Desert Hosp., Merignac, general engineering work, Dec. '18.
- CLARKSON, E. H. (XI) 2d Lt., C. A. C. Entered Service, 24 Apr. '18; Inst., Motor Transport School, Ft. Monroe, Va., 26 June '18; Sch. for Orientation Officers, Sept.; Regimental Orientation Officer, 30th Arty., Camp Eustis, to 17 Dec. '18. (Page 45.)
- CLARKSON, FREEMAN (VI) Capt., Engrs. Pvt., Engrs., 9 May '17; Pvt., 1 cl.; Corp.; Sgt.; 2d Lt., July '18; Prov. 1st Lt., 7 July; Capt., 18 Oct. '18. Co. A, 11th Engrs. (Ry.). A. E. F., 14 July '17—10 Dec. '19; attached to British Army; Co. E, 116th Engrs., 1st Army (American). Cambrai, Somme, and Lys Defensive; St. Mihiel Offensive; Army of Occupation.
- CLAUSSEN, H. P. (II) Lt., U. S. N. R. F. Ensign, U. S. N. R. F. (A.), 11 Sept. '17; Lt. (j. g.), 23 Mch. '18; Lt., 1 Oct. A. E. F., Dec. '17—Oct. '18; Foreign Aviation Ord. Representative of Bu. of Ord., on staff of Comdr., U. S. Naval Aviation Forces; Aviation Ord. Officer and acting Liaison Officer between U. S. N. and Royal Air Force, staff of Admiralty Sims, London, England, Mch. '18. In charge of naval aircraft bomb design and cons., Bu. of Ord., Navy Dept., Washington, D. C., Oct. '18—16 Mch. '19.
- COLEMAN, C. A. (II) Capt., C. A. C. 1st Lt., C. A. C., 8 Aug. '17; Capt., 29 Dec. '17. A. E. F., 12 Dec. '17—1 Aug. '19; Inst., Dept. of Gunnery, Heavy Arty. School; Btry. D, 53d Arty.; Member, Peace Conference, Paris, Dean and Commandant, American School Detachment, University of Poitiers, 1 Mch.—7 July '19. Officer of the French Academy.
- COMISKEY, D. L. (I) Pvt., C. A. C. Off. Tr. Sch., 1 Sept.—4 Dec. '18. Refused four times for active service on account of poor eyesight. See Civilian Record.
- CONNOLLY, J. I. (XI) 2d Lt., Public Health Service. Extra-Cantonment Units, Camp Gordon, Ga., and Camp Devens, Mass., 1 Mch. '18—15 Jan. '19. See Civilian Record.
- CRANDALL, W. R. (V) Pvt., C. W. S. American University Experiment Station, Washington, D. C. July '18—Jan. '19.
- CROSBY, R. A. (II) Ord. Sgt., Ord. Corps. Entered Service, 21 Aug. '17; Machine Gun School, Springfield, Mass.; Ord. Depot, 42d Div., Camp Mills, N. Y., Aug. '17. A. E. F., 18 Oct. '17—17 Apr. '19; Intermediate Ord. Depot No. 1; Advanced Ord. Depot No. 5, 101st Mobile Ord. Repair Shop, 26th Div. Chemin des Dames; Ansanville Sector; Pas Fini Sector; Aisne-Marne Offensive; St. Mihiel Offensive; Meuse-Argonne Offensive.
- CROWELL, H. R. (IV) 1st Lt., A. S. Pvt. (Aviation Sect.), Sig. C., 30 June '17; 1st Lt., A. S., 18 June '18. School of Military Aeronautics, Berkeley, Calif., 1 Sept. '17. A. E. F., 9 Oct. '17—28 Jan. '19; 8th Aviation Instruction Center, Foggia, Italy, 25 Oct. '17; Northern Italy, Oct. '18; France, Nov. '18.
- CURTIS, B. S. (VI) Pvt., C. A. C. Entered Service, 4 Sept. '18; 8th Co., C. A. C., Ft. Du Pont, Del., 8 Sept. '18; C. A. Tr. Sch., Ft. Monroe, Va., 4 Oct.—21 Nov. '18.
- CURTIS, M. P. (VI) Wagoner, Sn. C. A. E. F. '18—'19; 28th Field Hosp. Sn. Train, 4th Div., May '18. Army of Occupation, Bad Bertrich, Germany, 1 Mch. '19.
- CURTIS, T. S. (II) Ensign, U. S. N. R. F. Sea. 2 cl., U. S. N. R. F., 12 June '18; Ensign, 30 Sept. '18—6 Jan. '19.
- CUSHMAN, R. W. (XIII) Lt., Q. M. C. 301st Inf., Camp Devens, Mass., '17; 10th Co., 11th Bn., Camp Johnston, Fla., Jan. '18. A. E. F., '18—'19; Motor Truck Co. No. 439, Mch. '19.
- CUTLER, S. C. (X) Corp., Engrs. Pvt., Inf., '17; transferred to Engrs., '18; Corp., Engrs. 3d Co., Prov. Recruit Bn., 310th Inf., Camp Dix, N. J., Dec. '17. A. E. F., '18; Co. F, 163d Inf., June '18; 1st Repl. Co., 30th Engrs., 15 July '18.
- DANA, DUNCAN (VI) Capt., A. S. Pvt. Aviation Sect., Sig. C., 7 July '17; 1st Lt., A. S., 16 May '18; Capt., 3 Oct. '18. Ground School, 7 July '17. A. E. F., 25 Oct. '18—31 Mch. '19; Asst. Mech. Supt., later Officer in Charge, Airplane Repair Shop; flying training; C. O., 32d Aero Sq., 28 Sept. '18.

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- DANIELS, D. P. (V) 1st Lt., A. S. Entered Service, June '17. A. E. F., 15 Oct. '17—Nov. '18; Italy, 15 Oct. '17; in charge, U. S. Flying Field, England, Sept.—Nov. '18. Pasadena, Calif., Mch. '19.
- DARLINGTON, F. G., JR. (VI) Off. Tr. Camp, Ft. Niagara, 12 May '17; discharged for physical disability, 8 July '17.
- DAVIS, C. J., JR. (I) Capt., Engrs. Pvt., 2 Sept. '17; 2d Lt.; 1st Lt., 19 June '18; Capt., 4 Sept. '18. Res. Off. Tr. Camp, American University, Washington, D. C., 2 Sept. '17; Co. C, 3d Bn., 20th Engrs. A. E. F., 31 Jan. '18—8 Aug. '19; 116th Engrs., 13 Sept. '18; 316th Engrs., 15 Dec. '18; Co. E, 2d Engrs., 25 Mch. '19.
- DEAN, KEMERTON (II) 2d Lt., A. S. A. Pvt., Ambulance Service, 5 June '17; discharged to re-enlist in A. S., 23 Sept.; Pvt., A. S., 23 Sept. '17; 2d Lt., A. S. A. Jan. '19. Sect. 528. U. S. Ambulance Service, 5 June '17; Princeton Ground School, 23 Sept.; 3d Foreign Detachment, Garden City, L. I., 17 Nov.; 3d Flying Sq., Ellington Field, Texas, 26 Dec. '17; injured in flying accident, 1 Feb. '18; returned to duty, 18 Oct. Disch., 10 Dec. '18.
- DE FREMERY, DONALD (II) Ensign, U. S. N. R. F. M. M., U. S. N. R. F., '17; Ensign, '18.
- DELABARRE, L. H. (XV) Section Director, American Field Service. Section at Dunkirk and attached to 8th Belgian Army, Jan. '15; Asst. Mech. Engr., Paris, June; Sect. in Champagne Dist., Aug.; in charge Sect. B, at Jully, Nov. '15—Apr. '16. See Civilian Record.
- DEMERRITT, R. E. (I) 1st Lt., C. A. C. 2d Lt., C. A. C., 26 Oct. '17; 1st Lt., 18 May '18. 3d Tr. Camp, Ft. Monroe, Va., 1 Dec. '17; Ft. Stevens, Oregon, 28 Mch. '18; C. O., 13th Co., Columbia, Oregon, 15 Apr.; Inst., Garrison Officers' Sch. in Orientation; C. O., 2d Co., Columbia, Oregon; Orientation Officer, Adj., 3d Bn., C. O. Btry. F, 27th Arty., C. A. C., Camp Eustis, Va., 3 Nov. '18; Fort Supply Officer, Ft. Levett, Maine, 14 Jan. '19; Ft. Amador, Canal Zone, 26 Sept. '19.
- DIEMER, R. W., C. Q. M., U. S. N. R. F. (A.). Naval Aviation Detachment, M. I. T., May '18; Buffalo, N. Y., '18—'19.
- DODGE, W. W., JR. (IV) 2d Lt., Inf. Detached service, Engr. Div. of Ord., Washington, D. C. A. E. F. 16th Inf. Gassed, 18 July, wounded, 21 July '18, near Soissons. Stationed in Paris after leaving hospital, in charge of bombing sites for aviation. Aisne-Marne Offensive.
- DUFF, P. H. (XI) Capt., C. A. C. 2d Lt. and 1st Lt., C. A. C., 9 Aug. '17; Capt., 26 Jan. '18. Ft. Monroe, Va., '17. A. E. F., 13 Dec. '17—1 Jan. '20; Heavy Field Arty. Sch., Feb. '18; Hq., 51st C. A. C., Nov.; Bourges, Jan. '19; Hq., Paris, Mch. '19.
- DUNBAR, V. Y. (IV) Sgt., Ord. Corps. Pvt., 5 Mch. '18; Sgt., 1 Jan. '19. 25th Recruit Co., Ord. Storekeeping, Sch., 5 Mch. '18; 130th Ord. Depot Co., Camp Beauregard, La., June; Acting Storekeeper, Camp Exchange, Aug. '18—Mch. '19.
- *EASLEY, C. B. (VI) 1st Lt., C. A. C. 2d Lt., C. A. C., 1 Dec. '17; 1st Lt., '18. Ft. Monroe, Va., 1 Dec. '17; Ft. DeRussey, Coast Defense, Oahu, Hawaii, '18—1 Nov. '19. Died, 20 Jan. '20. See Civilian Record.
- EDGERTON, L. F. (I) Pvt. 1 cl., Engrs. 301st Engrs., 29 Apr. '18. A. E. F., 13 July '18—13 July '19; 301st Engrs. 4th Army Corps; University of Lyons, 12 Mch. '19. St. Mihiel Offensive; Meuse-Argonne Offensive; Army, of Occupation, 17 Nov. '18.
- EKDAHL, E. A. (VI) Ensign, U. S. N. R. F. Chief Elec. U. S. N. R. F., 22 Dec. '17; Ensign, 6 July '18. Experimental Station, New London, Conn., work on submarine detection, 14 Jan. '18; U.S.S. America (transport), installing and operating listening devices, 1 June—15 Dec. '18.
- ELLCOTT, V. LEM. (VII) Pvt., S. A. T. C. Med. E. R. C., Dec. '17; S. A. T. C., Johns Hopkins Medical School, 11 Oct.—10 Dec. '18.
- ELLIS, H. W. (VI) Sgt. 1 cl., Sig. C. Pvt., Sig. C., 23 Jan. '18; Corp.; Sgt., Sgt. 1 cl., 23 Jan. '18. A. E. F., 19 June '18—28 June '19; 34th Serv. Co., Hq., S. O. S., Tours, June '18; engineering work in Equipment, Installation and Cons. Sect., Telephone and Telegraph Div., Office of Chief Sig. Officer, A. E. F. Citation from General Pershing.
- ELLSWORTH, S. M. (XI) 2d Lt., Sn. C. Red Cross, Hampton, Va., 1 Sept. '17; Pvt., Off. Tr. Camp, 5 Jan. '18; Pvt., Inf., 1 Apr.; Engrs., 10 July; Sn. C., 16 Nov. '18. 3d Off. Tr. Camp, Camp Monro, N. Y., 5 Jan. '18; Co. C, 307th Inf., 1 Apr. A. E. F., 5 Apr. '18—22 July '19; Co. B, 26th Engrs. (Water Supply Regt.), 10 July; in charge, Mobile Water Purification Plant, supplying water, and analyzing well-waters for poisons in territory captured from the Germans, during St. Mihiel and Meuse-Argonne Offensives.
- *ERVAY, E. B. (IV). See Roll of Honor (page 122).
- EVANS, H. T. (IV) Capt. (T.), C. A. C. Pvt., Inf., 22 Sept. '17; Corp., 20 Oct.; 2d Lt., C. A. C., 12 Nov.; 1st Lt. 15 Mch. '17; Capt., 18 July; 1st Lt., C. A. C. (permanent rank); Capt. (T.), Co. B, 301st Inf., Camp Devens, Mass., 23 Sept. '17; Inst. in Gunnery, Field Fortifications and Camouflage, C. A. Tr. Camp; Co. O., Army Mine Planter Mills, installing submarine detecting apparatus off Cape Henry, Va., and Intelligence Officer, C. A. Tr. Center, Ft. Monroe, Va., 1 Dec.; 4th Co., Coast Defense of Cristobal, Ft. Sherman, Panama Canal Zone, 3 Feb. '19.
- EVANS, J. M. (II) Lt. (j. g.), U. S. N. R. F. Ensign, U. S. N. R. F., 10 Dec. '17; Lt. (j. g.), 1 Sept. '18. Gun Mount and Small Arms Div., Bu. of Ord., Navy Dept., Washington, D. C., 10 Dec. '17—18 Apr. '19. See Civilian Record.
- FAIR, G. M. (XI) 1st Lt., Inf. Pvt., Inf., Oct. '16; 1st Lt., Mch. '17. Overseas Tr. Co., Off. Tr. Camp, C. E. F., University of Toronto, Canada, Oct. '16; Probationer, Royal Sch. of Instruction, Jan. '17; transferred to Casualties, Mch. '17. Hon. disch. on account of injury received in training, May '17. See Civilian Record.

REGISTER OF MILITARY RECORDS

- FARRAR, J. R. (IV) Pvt. 1 cl., Ord. Corps. Pvt., Ord. Corps, Nov. '17; Pvt. 1 cl., '18. 10th Co., 3d Tr. Bn. 157th Depot Brig., Camp Gordon, Ga., Nov. '17; Ord. Dept., Washington, D. C., Feb. '18; Aberdeen Proving Grounds, Md., Feb. '19.
- FARTHING, W. J. (I) Lt. (j. g.), U. S. N. R. F. (A.). Ensign, U. S. N. R. F. (A.), 18 Feb. '18; Lt. (j. g.), 1 Oct., '18. Bu. of Ord., Navy Dept., Washington, D. C., 2 Feb. '18—'19.
- FELLOWS, R. C. (VI) Ensign, U. S. N. R. F. (A.). Naval Aviation Detachment, M. I. T., 12 June '18; Miami, Fla., Pensacola, Fla., '18—13 May '19.
- FISHER, D. K. E., JR. (IV) Capt., F. A. R. C. Pvt., Off. Tr. Camp, 12 May '17; 1st Lt., F. A., 15 Aug.; Capt., 31 Mch. '19. 1st Off. Tr. Camp, Ft. Myer, Va., 12 May '17. A. E. F., 29 Sept. '17—31 Jan. '19; F. A. Sch., Saumur, 29 Sept. '17; Bn. Communications Officer, Btry. Ex., Bn. Adj., 6th F. A., 1st Div., 20 Jan. '18; Inst. of Section, later of Sub-Division, General Arty. Practice, F. A. Sch., Saumur, 29 Apr.—29 Dec. '18. La Reine Sector, N. W. of Toul; Montdidier Sector (Cantigny), 6 Apr. '18.
- FLANNAGAN, COKE (VI) Capt., Sig. C. 1st Lt., Sig. C., 5 July '17; Capt., 13 Aug. '18. 1st Field Sig. Bn., 5 July '17; C. O., 3d Tr. Bn., Camp Meade, Md., 23 July; Co. A, 211th Field Sig. Bn., 6 Nov. A. E. F., 24 Dec. '17—13 Aug. '18. Office of Chief Sig. Officer, War Dept., Washington, D. C., 13 Aug. '18—'19. Aisne Defensive; Aisne-Marne Offensive. Croix de Guerre with Silver Star; Citation from General Petain. (Pages 148 and 179.)
- FLETCHER, R. A. (I) Lt., (j. g.), U. S. N. R. F. (A.). Ensign, U. S. N. R. F. (A.), 21 Nov. '17; Lt. (j. g.), 5 Mch. '18. Naval Aviation Detachment, M. I. T., 21 Nov. '17; in charge, Dept. of Gunnery, Naval Aviation Detachment, University of Washington, Seattle, Wash., 4 June '18—5 Jan. '19. Refused as physically unfit for Off. Tr. Camp and by the Draft Bd., '17. See Civilian Record.
- FLOYD, R. K. (X) 2d Lt., A. S. Entered Service, 28 July '17; Inst., Aerial Combat, Taliaferro Field, Fort Worth, Texas, Jan. '18—Jan. '19.
- FOOTE, C. L., 2d Lt., Engrs. 2d Lt., Aviation Sect., Sig. C., '18; transferred to Engrs. Inst., School of Military Aeronautics, Ohio State College, Columbus, Ohio, May '18. A. E. F., Oct. '18.
- FOOTE, F. C. (I) (XI) 1st Lt., Engr. R. C. 2d Lt., Engrs., 2 Sept. '17; 1st Lt., Engr. R. C., Aug. '19. 1st Co., 2d Engrs. Off. Tr. Sch., American University, Washington, D. C., 5 Sept. '17; Co. E, 303d Engrs., Camp Dix, N. J., 10 Dec. A. E. F., 23 Jan. '18—6 June '19; Co. A, 508th Engrs.; Bn. Supply Officer, 9 May '18—19 June '19; Stationed at Bazailles-sur-Meuse (Vosges), 15 Mch. '18; Liñol-le-Grand, 6 June; Bazailles-sur-Meuse, 15 Sept.; Lafranche, 30 Sept.; La Pallice, 30 Dec. '18. See Civilian Record.
- FORSYTH, R. E. (I) 2d Lt., A. S. A. Pvt., Aviation Sect., Sig. C., 4 Dec. '17; 2d Lt., A. S. A., R. M. A., 23 Aug. '18.
- FOWLE, W. H. (II) Pvt., Inf. 151st Depot Brig., Camp Devens, Mass., 2 Sept.—4 Dec. '18.
- FREEMAN, H. T. (II) Capt., Ord. Corps. 1st Lt., 20 July '17; Capt., 8 Jan. '18. Proof Officer, Sandy Hook Proving Grounds, N. J., July '17; Asst. Chief Proof Officer, Acceptance Div., Aberdeen Proving Grounds, Md., 1 Jan. '18. A. E. F., 15 June '18—June '19; Aide, Interpreter and Technical Asst. to Chief Ord. Officer, A. E. F., June '18—25 Jan. '19.
- FRY, C. W. (IV) Sgt. 1 cl., A. S. Entered Service, 4 Feb. '18; 2d Detachment, Bu. of Aircraft Production, A. S. FULLER, H. C. (X) 2d Lt., A. S. A. Pvt. 1 cl., Aviation Sect., Sig. C., 12 Nov. '17; 2d Lt., A. S. A., R. M. A., 17 Aug. '18. Ground Sch., Cornell University, 26 Jan. '18; training, Love Field, Dallas, Texas, 23 Mch.; Course for "Corps d'Armée" Pilot, and for Aerial Observer, Langley Field, Va.; Taliaferro Field, Texas, Jan. '19.
- GAGNON, E. C. (X) 1st Lt., C. W. S. Pvt., Off. Tr. Camp, 13 May '17; 2d Lt., Cav. R. C., 15 Aug.; 2d Lt., F. A., N. G., 15 Aug.; 1st Lt., 28 Feb. '18; transferred to C. W. S., 25 Aug. '18. 1st Off. Tr. Camp, Ft. Harrison, Ind., 13 May '17; 83d Div., Camp Sherman, Ohio, 15 Aug.; 37th Div., Camp Sheridan, Ala., Sept.; 112th Ammunition Tn., Oct. A. E. F., 17 June '18—2 Feb. '19; Asst. Gas Officer, 33d Div., 25 Aug. '18; 8th Tr. Area, Nov.; Organization and Tr. Center, Chinon, Jan. '19; Casual Officers Camp, Angers, 30 Jan. '19. Meuse-Argonne Offensive.
- GARDNER, C. R. (IX) 1st Sgt., Sig. C. Mr. Sig. Elec., Sig. C., '17; 1st Sgt., '18. Co. A, 101st Field Sig. Bn., '17. A. E. F., '18—'19.
- GFRÖERER, HERBERT (II) 1st Lt., Ord. Corps. 2d Lt., Ord. Corps, 17 Nov. '17; 1st Lt., 13 Sept. '18. Machine Gun Sect., Engr. Div., Ord. Dept., Washington, D. C., 17 Nov. '17—10 Mch. '19.
- GILES, A. L. (IV) C. M. M., C. C., U. S. N. R. F. C. M. 1 cl., C. C., U. S. N. R. F., 2 May '18; C. M. M., 1 Aug. '18. Office of Shop Supt., Hull Div., Navy Yard, Boston, Mass., 2 May '18; Inspector on cons. of new executive office for Master Boatbuilder.
- GILKEY, H. J. (I) 1st Lt., Engrs. 2d Engr. Off. Tr. Camp, Ft. Leavenworth, Kan., 2 Sept. '17; Military Mapping, Mexican Border, detached service with U. S. Geodetic Survey, 1 Oct.; in Virginia, Mch. '18. A. E. F., 14 July '18—18 Aug. '19; G. H. Q., Intelligence (G—2C), 29th Engrs., Chaumont, 14 July '18; Supply, Cons. and Transportation Officer, Hq., 2d Army, G—2C, 29th Engrs., Toul, 19 Sept.; 2d Army Defensive Area, 19 Sept.—11 Nov.; Head of Map and Drafting Dept., American Relief Administration, Paris, 25 Feb. '19.
- GLANN, C. B. (VI) 1st Lt., Sig. C. Entered Service, 14 July '17; Co. C, 302d Field Sig. Bn., Camp Upton, N. Y., '17. A. E. F., 29 Mch. '18—27 July '19; Chateaufvillain, '19; University of Paris, 1 Mch. '19. Baccarat Sector; Vesle Sector; Oise-Aisne Offensive; Meuse-Argonne Offensive. Divisional Citation.

TECHNOLOGY'S WAR RECORD

- GOLDSTEIN, E. J. (X) 2d Lt., C. W. S. Pvt., C. W. S., 13 Dec. '17; Sgt., 1 cl., 1 May '18; 2d Lt., 1 Oct.; detailed to Ord. Dept., Apr. '19. Research Div., C. W. S., 13 Dec. '17; Property Officer, Nitrogen Research Laboratory, Nitrates Div., Ord. Dept., Washington, D. C., Apr.—11 Sept. '19.
- GOODING, PERCIVAL (X) Sgt., 1 cl., C. W. S. Pvt., C. W. S., 10 Apr. '18; Corp., Oct.; Sgt., 1 cl., Dec. '18. Pyrotechnic Div., American University Experiment Station, Washington, D. C., 10 Apr.—20 Dec. '18.
- GORE, JOHN (X) 2d Lt., C. W. S. Pvt., C. W. S., 14 Aug. '18; Sgt., 1 cl., 15 Aug.; 2d Lt., 4 Oct. '18. Overseas Detachment, 14 Aug. '18. A. E. F., 31 Aug. '18—17 Feb. '19; Asst. Div. Gas Officer, 85th Div.; Inst., Gas Warfare, 3d Corps Sch., Dec. '18. See Civilian Record.
- GRAFF, M. G. (VI) 1st Lt., Engrs. Pvt., Engrs., 12 Dec. '17; Sgt., Feb. '18; Sgt., 1 cl., Apr.; 2d Lt., 26 June; 1st Lt., 26 Aug. '18. Co. B, 56th Engrs. (searchlight), Washington Barracks, D. C., 12 Dec. '17; Ellington Field, Texas, Apr. '18; Co. I, 56th Engrs., 26 June; Co. D, 605th Engrs. A. E. F., 19 Sept.—12 Dec. '18; Training Base, Campigny near Langres, Sept. '18.
- GRAVES, W. L. (VI) Pvt., 1 cl., Engrs. 153d Depot Brig., Camp Dix, N. J., 25 June '18; Co. Clerk, 312th Engr. Tr. Regt., 18 Aug. A. E. F., 23 Aug. '18—16 June '19; Pons, 11 Sept. '18; S. O. S. Troops, Bordeaux Dist., 1 Oct.; Student and Inst., A. E. F. University, Beaune, 15 Mch. '19. See Civilian Record.
- GUETHING, C. T. (II) 1st Lt., Ord. Corps. Entered Service, 7 June '17; Nitrate Div., Ord. Dept., Muscle Shoals, Ala., 2 Nov. '17; Ord. Inspector, Baltimore, Md., Toledo, Elyria and Cleveland, Ohio, 16 Feb. '18—5 July '19.
- HAGGKVIST, F. E. (II) Lt. (j. g.), U. S. N. R. F. (A.). Sea, 2 cl., U. S. N. R. F., 11 Dec. '17; C. Q. M., 1 Jan. '18; Ensign, (A.), 19 Mch.; Lt., (j. g.), 4 June '19. Plane Inspector's Course, Naval Aviation Detachment, M. I. T., 14 Dec. '17; Student Officer, Curtiss Aeroplane Co., Buffalo, N. Y., 26 Jan. '18; Asst. Production Mgr., for U. S. N. at Curtiss Aeroplane Co., 18 Mch.; Photographic Officer, in charge Photographic Laboratory, Naval Air Station, Pensacola, Fla., 1 May '19.
- HAINES, E. B. (II) 2d Lt., C. A. C. Pvt., Sn. C., 15 June '17; transferred to C. A. C.; Mr. Gun., 30 Nov.; 2d Lt., 31 Oct. '18. Ambulance Co., Middletown, Conn., 15 June '17; Master Gunners' Course, Ft. Monroe, Va., 1 Aug.; 56th C. A. C., Ft. Terry, Coast Defense, Long Island Sound, 30 Nov. A. E. F., 15 Feb. '18—19 July '19; Arty. Hq., 1st Army, 15 Feb. '18; Arty. Sch., Saumur, 1 Aug.; Mess, Sanitation, and Mechanical Officer, Btry. F, 146th F. A., 31 Oct.; Grenoble University, 1 Mch. '19. Meuse-Argonne Offensive; Army of Occupation.
- HALE, E. D. (X) Pvt., C. W. S. Entered Service, Sept. '18; Laboratory Asst., Long Island Gas Mask Factory and Asst. Inspector, Gas Alarms, Stewart Warner Speedometer Corp., for Gas Defense Div., C. W. S. See Civilian Record.
- HALL, H. E. (II) Capt., Engrs. 2d Lt., Engrs., '17; Capt., '18. 30th Engrs. (Gas and Flame), '17. A. E. F., '18; Co. B, 1st Bn., 30th Engrs.
- HAMILTON, W. W. (VI) Maj., U. S. A. Capt., U. S. A., Retired; Q. M. Coast Defense of Portland, Ft. Preble, Maine, in '17; transferred to Letterman Hospital for treatment; Professor of Military Science and Tactics, Gordon Institute, Barnesville, Ga., since Sept. '18.
- HANDS, H. A. (VI) Sgt., 1 cl., Engrs. Pvt., Engrs., 13 Dec. '17; Corp., 12 Jan. '18; Sgt., 26 Jan.; Sgt., 1 cl., 7 Oct. '18. Searchlight Detachment, Washington Barracks, D. C., 12 Dec. '17; became 56th Engrs., Jan. '18; in hospital, 26 Feb.; Acting Regt. Sgt. Major, 71st Engrs., Sept.—9 Dec. '18.
- HARMS, H. W. (XIII) reported Capt., A. S. A. '18.
- HARRINGTON, C. F. (II) Sgt., Inf. Pvt., Inf., N. G., 28 Jan. '15; Corp., 12 July '17; Sgt., 27 July '17. A. E. F., Oct. '17—Sept. '18; Co. D, 104th Inf.; Co. Gas non-comm. officer; in trenches, Feb.—Aug. '18. Inst. Gas Sch., Camp Sevier, S. C., Sept. '18—'19. Aisne-Marne Offensive (Château-Thierry). Slightly gassed, spring '18. Camp Sevier, S. C., Sept. '18—'19.
- HARROWER, P. D. (II) 2d Lt., C. A. C. Pvt., Marine Co., 20 Dec. '17; transferred to C. A. C., 10 June '18; 2d Lt., 25 Sept. '18. Paris Island, S. C., 20 Dec. '17; Tr. Camp, Ft. Monroe, Va., 10 June '18; Camp Eustis, Va., 25 Sept. '18—Jan. '19. See Civilian Record.
- HARVEY, CLARENCE (VI) Lt., Engrs. Corp., F. A., '17; Sgt., '18; Lt., Engrs., '18. Btry. D, 301st F. A., Camp Devens, Mass., '17. A. E. F., France, '18. Engrs., Camp Leach, Washington, D. C., Nov. '18.
- HASTIE, F. B. (I, XI) Capt., Engrs. 2d Lt., Engrs., 16 Oct. '17; 1st Lt., 21 Feb. '18; Capt., 21 Apr. '18. Engr. Off. Tr. Camp, Ft. Leavenworth, Kansas, 10 Nov. '17; 303d Engrs., Camp Dix, N. J., 5 Jan. '18; Camp Adj., Camp Laurel, Md., 1 May; Co. Comdr., Camp Forrest, Ga., 16 July; Supply Officer, 209th Engrs., 1 Sept.; Inst., Engr. Sch., Camp Humphreys, Va., 1 Mch. '19. A. E. F., Inspection and Observation, Base Ports, S. O. S., from St. Mihiel to Ostend, and through Strassburg, Mainz, Coblenz, Cologne and Paris, 15 June—1 Sept. '19. Supply Officer, Engr. Sch. and Light Railways, Camp Humphreys, Va., 10 Oct. '19.
- HATCH, PAUL (II) 1st Lt., C. A. C. 2d Lt., C. A. C., 1 Nov. '17; 1st Lt., 1 Apr. '18. Ft. Monroe, Va., Nov. '17; Ft. Andrews, Coast Defense of Boston, Mch. '18; Btry. C, 73d C. A., Sept. A. E. F., 15 Sept.—25 Dec. '18; in hosp., Manchester, England, Oct.; American Rest Camp, Knotty Ash, Liverpool, Oct.; Angers, Nov. '18.
- HAWES, CLAYTON (VI) 2d Lt., F. A. Entered Service, 10 May '17. Btry. F, 351st F. A., 167th F. A. Brig. A. E. F., June '18—Feb. '19; trained at La Courtine; Reconnaissance Officer, Marlach Sector.
- HAWLEY, K. F. (VI) 2d Lt., Engrs. Pvt., Engrs., '17; 2d Lt., '18. A. E. F., '18; 56th Engrs. (Searchlight.)
- HAYDEN, E. McK. JR. (X) 1st Lt., C. W. S. Entered Service, '18; Edgewood Arsenal; Kingsport, Tenn.

REGISTER OF MILITARY RECORDS

- HAYNES, WALTER (VI) Capt., Engrs. 403d Engrs., Ft. Douglas, Utah, 16 Oct. '18; Engr. Off. Tr. Sch., Camp Humphreys, Va., 2 Nov.; Inst., Electrical and Mechanical Engr., Engr. Sch., Camp Humphreys, 20 Jan.—Nov. '19.
- HAZARD, F. R. (VI) 2d Lt., F. A. 2d Lt., O. R. C., May '17 resigned comm. and enlisted in F. A.; Pvt., F. A.; Corp.; Sgt.; 2d Lt., 1 June '18. Btry. A, 4th F. A., Chattanooga, Tenn., 11 Sept. '17; 3d Off. Tr. Camp, Ft. Oglethorpe, Ga., Jan. '18. A. E. F., 16 Apr. '18—7 Mch. '19; Arty. Sch., Saumur; Heavy Arty. Sch., Angers; Btry. D., 54th Arty., C. A. C.
- HEFLER, R. E. (I) Capt., Engrs. 2d Lt., Engrs., 26 July '17; 1st Lt., 6 Nov.; Capt., 23 Feb. '19. Co. C, 6th Engrs., 26 July '17. A. E. F., Nov. '17—Apr. '19. Somme Defensive; Aisne-Marne Offensive; St. Mihiel Offensive; Meuse-Argonne Offensive; Army of Occupation. Wounded in leg, 15 July. See Civilian Record. (Page 175.)
- HOBBS, J. B. (XIII) Sgt., Inf. Pvt. Inf., 25 May '18; Sgt., 18 Nov. Co. I, 314th Inf., 79th Div., 25 May '18. A. E. F., 8 July '18—20 July '19; University of Toulouse, 1 Mch. '19. Troyon Sector; Sector 304, Meuse-Argonne Offensive (Grand Montaigne).
- HOFFMAN, S. A. (X) Corp., C. W. S. Pvt., C. W. S., 20 Mch. '18; Pvt. 1 cl., 10 June; Corp., 9 Sept. '18. Chemical laboratories, experimenting on poison gases, and inspecting smoke cartridges; severely gassed; transferred to Mechanical Dept., invented mechanical parts for improvement of gas masks and supervised mfr. of parts, 20 Mch. '18—22 Jan. '19.
- HOGAN, J. F. (IV) Mr. Engr. (sr. gr.), Engrs. Pvt., Engrs., 2 Oct. '17; Corp., Nov.; Master Engr., (jr. gr.) 1 Apr. '18; Mr. Engr., (sr. gr.), 1 July '18. 301st Engrs., Camp Devens, Mass., 2 Oct. '17; non-comm. officer, in charge of Topographical Office, 1 Jan. '18. A. E. F., 13 July '18—13 June '19; built Classification Camp, St. Admand-Montrand (Cher), Aug. '18; Dept. of Architecture, University of Beanne, 27 Apr. '19. St. Mihiel Offensive; Toul Sector; Army of Occupation.
- HOLBROOK, F. C. (I) 2d Lt., F. A. 301st Ammunition Train, Camp Devens, '17. A. E. F., '18; 302d F. A., Dec. '18.
- HOLDEN, T. S. (IV) Capt., Ord. R. C. 1st Lt., Ord. Corps, 9 Feb. '18; Capt., Ord. R. C., 2 Apr. '19. Inst. in use of aerial drop bombs, later asst. in design of anti-aircraft fire control system, Engr. Div., Ord. Dept., Washington, D. C., 9 Feb.—31 Dec. '18.
- HOLLAND, MAURICE (VI) 2d Lt. A. S. A. Ground School, M. I. T., 30 July '17; detached service with Royal Flying Corps, Long Branch, Canada, 16 Sept.; Flying Instruction and Aerial Gunnery, Taliaferro Field, Texas, 7 Nov.; 28th Aero Sq., 13 Feb. '18; Flying Officer, 139th, later 184th Aero Sq., intensive course in Aeronautical Engineering and Design, M. I. T., 18 May; Testing Dept., Wright Field, Dayton, Ohio, 5 Aug.; Asst. Officer in Charge, Park Repair Dept., 10 Aug.; Observer on official flight tests, Handley-Page, and studying details of construction at Standard Aircraft Factory, 6 Sept.; Engineering Div., A. S., McCook Field, Dayton, Ohio, 2 Jan. '19; Asst. Officer in Charge, Planes and Engines Maintenance Dept., Jan. '19.
- HOLMBERG, C. H. (I) 2d Lt., C. A. O. R. C. Pvt., Inf., 26 Apr. '18; C. A. C., 20 May; 2d Lt., C. A. O. R. C., 22 Nov. '18. 4th Co., 1st Bn., 151st Depot Brig., Camp Devens, Mass., 26 Apr. '18; C. A. C., Ft. Monroe, Va., 20 May; 6th Tr. Camp, 10 Sept.—22 Nov. '18.
- HOLMES, ALBERT (VI) 1st Lt., Engrs. 2d Lt., 8 May '17; 1st Lt., 3 June '18. 1st Engrs., 8 May '17. A. E. F., 7 Aug. '17—26 Aug. '19; Inst., 112th Engrs., 3 June '18; 6th Engrs., 8 Feb. '19. Thiaucourt Sector; Baccarat Sector; Toul Sector; Ypres-Lys Offensive; Meuse-Argonne Offensive.
- HOLMES, F. W. (V) Sgt., M. T. C. Driver, American Field Service, with French Army, June—1 Oct. '17. Pvt., Q. M. C., 1 Oct.; Sgt., M. T. C., 18 Sept. '18. France, June '17—6 June '19. Chemin des Dames Offensive, 23-27 Oct. '17; Somme Defensive, 21 Mch.—6 Apr. '18; Aisne, 27 May—5 June; Montdidier-Noyon Defensive, 9-13 June; Champagne-Marne Defensive, 15-18 July; Aisne-Marne Offensive, 18 July—6 Aug.; Somme Offensive, 8 Aug.—17 Sept.; Oise-Aisne Offensive, 18-27 Sept.; Meuse-Argonne Offensive, 1 Oct.—11 Nov. '18.
- HOOD, J. M. (V) Pvt., Inf. 18th Co., 5th Bn., Depot Brig., Camp Devens, Mass., 21 Sept. '17; Gas Mask Factory, Hero Mfg. Co., Philadelphia, Pa., Oct.; Gas Defense Control Laboratory, Nov.; Technical Development Laboratory, Astoria Heat, Light and Power Co., Long Island City, July '18; Field Training Sect., Gas Defense Plant, Long Island City, Sept. '18—11 Jan. '19.
- HUBER, L. S. (VI) 1st Lt., M. T. C. Pvt., M. T. C., 28 Sept. '17; Sgt. Maj., 9 Jan. '18; 1st Lt., 28 Oct. '18. Unit 304, 28 Sept. '17—1 Jan. '19.
- HULSE, F. E. (XI) 1st Lt., Sn. C. Pvt., Inf., 5 Sept. '17; Sgt.; 1st Sgt.; Bn. Sgt. Maj.; 2d Lt., Sn. C., 3 June '18; 1st Lt., 7 Nov. '18. Camp Devens, Mass., 5 Sept. '17; Camp Greenleaf, Ga.; Asst. Camp Sn. Engr., Camp Dix, N. J., 29 July '18; Camp Sn. Engr., Camps Shelby, Miss., and Benning, Ga.; Inspecting Sn. Engr., Surgeon-General's Office, Washington, D. C., 10 Oct. '19.
- HUNNEMAN, J. R. (II) 1st Lt., Inf. Pvt., Off. Tr. Camp, 12 May '17; 2d Lt., Inf., Aug.; 1st Lt., (T.), Feb. '18. 1st Off. Tr. Camp, Plattsburgh, N. Y., 12 May '17; 30th Inf., 3d Div., Aug. A. E. F., Apr. '18—Jan. '19; C. O., Co. E, 30th Inf. Aisne Defensive, (Hill 204 [Vaux]), 2 June '18; Champagne-Marne Defensive, 13-23 July; Aisne-Marne Offensive (Vesle River); St. Mihiel Offensive; Meuse-Argonne Offensive. Wounded by bullet in Argonne Forest, 11 Oct. '18. Cited for work at the Marne. (Page 175.)
- HYDE, J. F. C. (I) Capt., Engrs. 1st Lt., Engr. O. R. C., 24 Jan. '17; Capt., Engrs., 15 Sept. '18. Active duty, 7 May '17; 308th Engrs., 2 Sept.; Co. C, 113th Engrs., 30 Oct. '18. A. E. F., 24 Sept. '18—19 June '19. Supply Officer, 113th Engrs., 1st Bn. Hq., 24 Sept. '18.

TECHNOLOGY'S WAR RECORD

- *INGRAHAM, F. T. (I) See Roll of Honor (page 117).
- JASIONOWSKI, V. A. (II) (VI) 2d Lt., F. A. 2d Off. Tr. Camp, Plattsburg, N. Y., 23 Aug. '17; Leon Springs, Texas, Nov.; F. A. Repl. Depot, Camp Taylor, Ky., July; 39th F. A., Camp Lewis, Wash., Aug. '18—Jan. '19.
- JEWETT, T. C. (I) Student Officer, Heavy Arty., 1st Off. Tr. Camp, 12 May '17. Disch. for disability, Aug.
- JEWETT, T. G., JR. (VI) Pvt., 1 cl. Engrs. Entered Service, 10 Dec. '17; Wagon Co. No. 5, 23d Engrs., Camp Meade, Md. A. E. F., 15 Mch. '18—30 Mch. '19; Service Co., 1st Engrs. St. Mihiel Offensive; Meuse-Argonne Offensive. Gassed and evacuated, 15 Oct. '18.
- JONES, L. H. (II) 1st Lt., T. C. Driver, Norton-Harjes Ambulance Corps, 3 May '17; Pvt., Ry. T. C., 10 Sept.; 2d Lt., Ry. T. C., 9 Mch. '18; 1st Lt., T. C., 1 Nov. '18. A. E. F., 21 Apr. '17—22 Feb. '19; three months at the front; Draftsman, plans of docks, Ry. Transportation Dept., Paris; Car Record Office, Tours; Asst. to General Supt. of Ry. Transportation; Asst. to Deputy Director-General of Railways, S. O. S.
- KAULA, E. L. (X) 2d Lt., F. A. Pvt. 1 cl., 5 Jan. '18; Sgt., F. A., 20 Apr.; 2d Lt., 12 July. 3d Off. Tr. Camp, Camp Upton, N. Y., 5 Jan. '18; Btry. E., 304th F. A., 23 Mch. A. E. F., 21 Apr.—30 Dec. '18; Arty. Sch., Saumur, 10 May; Heavy Arty. Sch., Angers, 1 Aug.; Arty. Sect., Anti-Aircraft Sch., Arnouville-les-Gonesse, 6 Aug.; 8th Anti-Aircraft Btry., with 5th French Army, Manonville and Augerville (Lorraine); Btry. C, 3d Anti-Aircraft Bn., Hq. and Supply Co., 6th Anti-Aircraft Bn.; 42d Anti-Aircraft Btry., 5th Sector; 16th Anti-Aircraft Btry., 12th Sector.
- KELLER, A. R. (I) Capt., Engrs. Commissioned, June '17; Engr. Off. Tr. Camp, Camp Lee, Va., June '18; Camp Humphreys, Va., Aug.; Office of Chief Engr., Washington, D. C., Oct. '18—Aug. '19.
- KENNEY, F. S. (II) Ensign, U. S. N. R. F. Sea. 1 cl., U. S. N. R. F., 3 May '17; C. M. M., 26 Dec.; Machinist, 27 Mch. '19; Ensign, 14 June '19. Boston Section Patrol, 3 May '17; Aviation Detachment, M. I. T., 9 Nov.; 1st Naval Dist. Hq., 18 Feb. '18; Naval Air Station, Chatham, 1 Apr.; Naval Steam Eng. Sch., Wentworth Institute, Mass., 18 Sept.; Stevens Institute, Hoboken, N. J., 27 Dec.; U.S.S. Paysandu, 25 Apr. '19; Stevens Institute, 3-14 June '19.
- KERSTEIN, B. H. (I) Pvt., C. W. S. Pvt., Ord. Corps, 1 Feb. '18; transferred to C. W. S., Apr. '18. Engr. Bu., Ord. Dept., 1 Feb. '18; Supervisor of Cons., Mustard Gas Plant, Edgewood Arsenal, Md., 1 Apr.—17 Dec. '18.
- KLEMIN, ALEXANDER (XIII) 2d Lt., A. S. Mr. Sig. Elec., Aviation Sect., Sig. C., 27 Nov. '17; 2d Lt., A. S., 19 July '18. Engr. Div., A. S., in charge of Aeronautical Research Dept., McCook Field, Dayton, Ohio, 27 Nov. '17—3 Jan. '19. (Page 20.)
- KNIESZNER, W. T. (VI) Sgt. 1 cl., Sig. C. 317th Field Sig. Bn., 16 Jan. '18. A. E. F., 9 July '18—14 June '19; Co. C, 317th Field Sig. Bn., 2d Corps Sig. Sch., Chatillon-sur-Seine, 15 Aug.; Inst., Telephone and Telegraph, and later Radio Depts., 15 Sept.; Observer of signalling with Corps Liaison Officer, 5th Army Corps, 1st Div., Oct. N. C. O. Instructing Staff, Sig. Sch., 10 Nov. '18. Meuse-Argonne Offensive.
- KNOWLAND, R. G. (X) Capt., C. W. S. 1st Lt., Ord. Corps, 18 May '17; Capt., C. W. S., 28 Aug. '18. A. E. F., Sept.—Dec. '18; special duty for protection of troops against mustard gas. Citation from Chief of C. W. S., A. E. F. See Civilian Record. (Page 184.)
- KNOWLTON, L. E. (I) Capt., Inf. Pvt., Off. Tr. Camp, 14 May '17; Capt., Inf., 20 Aug. '17. C. O., M. G. Co., 316th Inf., Camp Meade, Md., 29 Aug. '17. A. E. F., 8 July '18—29 May '19; Regt. Intelligence Officer; Personnel Adj., 316th Inf., 9 June '19. Meuse-Argonne Offensive (Montfaucon, Grande Montagne). Wounded, 29 Oct. '18.
- LAKE, H. R. (IV) Ensign, U. S. N. R. F. Sea. 2 cl., U. S. N. R. F., Oct. '17; Ensign, Feb. '18. Naval Cadet Sch., Cambridge, Oct. '17; Junior Watch and Div. Officer, U.S.S. Kansas, Jan. '18; Listening Device Service, New London, Conn., 16 May; Ex. Officer, U. S. Sub-Chaser No. 244; Adriatic Sub-Chaser Detachment, Corfu (Greece) Base, 25 June '18—Jan. '19.
- LAPHAM, SAMUEL, JR. (IV) 2d Lt., C. A. C. 2d Officers Tr. C., 27 Aug. '17; Asst. Cons. Q. M., Ft. Moultrie, S. C., Dec.; 61st Arty. C. A. C., July '18. A. E. F., 17 July '18—17 Feb. '19; Camouflage Sect., Engr. Sch., Ft. St. Meuge, Langres; Heavy Arty. Course, Organization and Training Center, No. 1, Libourne, Oct. '18; Camouflage Officer, 1st Bn., 61st Arty. and Orientation Officer, Btry. A, Sept.; Recording and Plotting Officer, Btry. A, for proof-firing of Mobile Sea Coast rifles, St. Jean d'Illac, 13 Nov. '18.
- LARNER, HAROLD (XIII) Lt., C. C., U. S. N. Ensign, C. C., U. S. N., 14 Apr. '17; Lt., 15 Apr. '18. Constructor, in charge of repair and cons. of ships, Boston Navy Yard, Mass., 14 Apr. '17. A. E. F., Mch. '18—Feb. '19; Naval Constructor, U.S.S. Bridgeport, Brest, and other ports of France, in charge of repairing destroyers and submarines. Asst. Outside Supt., Boston Navy Yard, Mass., Feb. '19.
- LAWRANCE, C. W. (VII) 1st Lt., C. A. C. Pvt., Off. Tr. Camp, 14 May '17; 2d Lt., C. A. C., 15 Aug.; 1st Lt. (T), 26 Oct. '17. 1st Off. Tr. Camp, May '17; Ft. Monroe, Va., Aug. A. E. F., 7 Sept. '17—Oct. '18; Anti-Aircraft Dept., Arty. Sch., '18; Inst., Anti-Aircraft Service, Hq., Paris, Jan. '18; Liaison and Information Officer, Hq., 1st Army Arty. Inst., Anti-Aircraft Div., C. A., Sch., Ft. Monroe, Va., Oct. '18—'19. Nancy, Oct. '17.
- LAWRASON, LEVERING (II) Corp., C. W. S. Pvt., Inf., May '18; transferred to C. W. S., July; Corp., C. W. S., 1 Oct. '18. Hq. Co., 156th Inf., May '18; Draftsman, Hq. Dept., Development Div., C. W. S., Nela Park, Cleveland, Ohio, Oct.—12 Dec. '18.
- LEACH, W. B., JR. (X) Capt., C. W. S. 1st Lt., Ord. Corps, 25 July '17; Capt., C. W. S., 25 Oct. '18. Inst., Ord. Tr. Sch., San Antonio Arsenal, Texas, 25 July '17; Office of Chief of Ord., Small Arms Div., Washington, D. C., 20 Nov.; Inspector of Ord., Winchester Repeating Arms Co., New Haven, Conn., 18 Dec.; Chlorine Plant, Edgewood Arsenal, Md., 11 June '18; Chief of Experimental Div., C. W. S., Edgewood Arsenal, Md. '19.

REGISTER OF MILITARY RECORDS

- LEMMON, MARK (IV) 1st Lt., Engrs. 2d Lt., Engrs., 5 July '17; 1st Lt., 10 Aug. '18. 33d Engrs., Camp Devens, Mass., 5 July '17; 302d Engrs., 77th Div., Camp Upton, 10 Dec. A. E. F., Apr. '18—May '19. British Front in Flanders, 16 Apr.—11 June '18; Baccarat Sector; Vesle Sector; Oise-Aisne Offensive; Meuse-Argonne Offensive. Regiment received the Croix de Guerre.
- LEVINE, S. E. (I) Corp., Engrs. Co. B, 1st Repl. Regt., Engrs., '17. A. E. F., '18—'19; Co. D, 74th Engrs.
- LIDDELL, W. A. (I) 1st Lt., F. A. R. C. Pvt., Off. Tr. Camp, May '18; 2d Lt., F. A., Aug.; 1st Lt., F. A. R. C., 1 Apr. '19. F. A. Off. Tr. Sch., Camp Taylor, Ky., May '18; Inst., 5th Tr. Btry., F. A. Cent. Off. Tr. Sch., Camp Taylor, Ky., 15 Aug.—7 Dec. '18. See Civilian Record.
- LIEBER, A. C., JR. (I) Capt., Engrs. 2d Lt., Engrs., 11 June '17; 1st Lt., 22 Feb. '18; Capt., 5 Apr. '18. Co. B, 309th Engrs., Camp Leach, D. C., 11 June '17; Panama Canal Zone, 5 Jan. '19.
- LITTLE, T. W. (I) Capt., Ord. Corps. 1st Lt., Ord. Corps., 20 Aug. '17; Capt., 28 June '18. Experiments and designs for Engr. Div., Ord. Dept., at Springfield Armory, Mass., 20 Aug. '17; in charge of Administration, Machine Gun and Small Arms Sect., Engineering Div., Ord. Dept., Washington, D. C., 1 July '18—1 Feb. '19.
- LITTLEFIELD, W. B. (VI) 1st Lt., C. A. C. Pvt., 12 May '17; 2d Lt., Inf., 15 Aug.; transferred to C. A. C., 26 Dec.; 1st Lt., C. A. C., Aug. '18. 1st Off. Tr. Camp, 12 May '17; 23d Inf., 15 Aug.; Bn. Adj., 23d Inf. A. E. F., 7 Sept. '17—4 Aug. '18. Hq. Co., C. A. Tr. Center, Camp Eustis, Va., Aug.—7 Dec. '18. Aisne Defensive (Château-Thierry), 31 May—6 June '18. Wounded, 6 June '18.
- LOOMIS, C. W. (XI) Capt., Engrs. Pvt., Engrs., 28 June '17; Sgt. 1 cl., 2 July; 2d Lt., Feb. '18; 1st Lt., 30 Sept.; Capt., 8 Apr. '19. Co. B, 14th Engrs. (Ry.), 28 June '17. A. E. F., 27 July '17—19 July '19; Chief Train Dispatcher on light railways operated by 1st Bn., 14th Engrs., British Front, Sept.; in charge garage, Paris, Dec.; Light railways location surveys, Feb. '18; Asst. General Supt. of Transportation, Div. of Light Railways, Aug.; Acting General Supt., 1 Oct.; Asst. Adj. and Personnel Officer, Service of Light Railways, Mch. '19.
- LOPER, C. S., reported Capt., Sn. C., at Sch. of Hygiene, Newport News, Va., in June '18.
- LORD, C. R. (II) 2d Lt., Engrs. Entered service, 1 Aug. '18. A. E. F., Aug. '18—Mch. '19; in charge Branch Office, Gen Purchasing Agent, A. E. F. in Turin, Italy.
- LOW, R. P. (IX) 1st Lt., A. S. Pvt., Aviation Sect., Sig. E. R. C., 8 June '17; 1st Lt., A. S., 2 Nov. '17. Rockwell Field, San Diego, Calif., 8 June '17; Ground Sch., Berkeley, 1 July; Cadet, North Island, 8 Sept.; Flying Inst., 10 Oct. A. E. F., 20 Dec. '17—9 Dec. '18; Engr. Officer, 3d Aviation Instruction Center, Issoudun, 21 Dec. '17; Technical Section, Tours, 5 July '18; Colombey-les-Belles, 6 Oct. '18.
- LUCAS, E. W. VAN C., JR. (I) 1st Lt., Engrs. Pvt., Engrs., 6 June '17; Pvt. 1 cl., 1 Aug.; Corp., 2 Nov.; 2d Lt., 25 May '18; 1st Lt., 10 Apr. '19. Co. D, 14th Engrs. (Ry.), 7 June '17. A. E. F., 27 July '17—19 June '19; operating light railways near Arras, Aug. '17; Army Engr. Sch., Langres, 1 Dec.; Angers, 2 June; C. O., Detachment of men, Div. of Cons. and Forestry, Office of Chief Engr., Tours, 14 June '18. Luneville Sector, 7—28 Apr. '18.
- LYMAN, R. S. (VII) 2d Lt., A. S. A. Pvt., Sig. R. C., 7 Nov. '17; 2d Lt., A. S. A., 5 June '18. Inst. in cross-country flying and navigation, 7 Nov. '17—3 Jan. '19. Member, Tech-Harvard Unit to Serbia under Dr. R. P. Strong, '15.
- MACK, L. G. (IV) 1st Lt., Engrs. Pvt., Engr. Off. Tr. Camp, 6 July '17; 2d Lt., Engr. R. C.; 1st Lt., Engrs. 14 Feb. '19. Engrs. Off. Tr. Camp, Vancouver Barracks, Wash., 2 Sept. '17. A. E. F., 27 Jan. '18—19 Feb. '19; Depot Engr. Officer, Paris, 27 Jan. '18, trans-shipping supplies from Le Havre and Rouen to Engr. Units in France.
- McADAMS, W. H. (X) Capt., C. W. S. 1st Lt., Chemical Service Sect. (N. A.), 26 Jan. '18; Capt., C. W. S., 13 July '18. Chemical Service Sect. (N. A.), Washington, D. C., 4 Feb. '18; Asst. Chief, Development Div., C. W. S., Cleveland, Ohio, 1 July '18. (Pages 257 and 258.)
- McCARTHY, C. J. (I) Lt. (j. g.), C. C., U. S. N. R. F. Ensign, U. S. N. R. F. (A), 29 Apr. '18; Lt. (j. g.), C. C., U. S. N. R. F., 11 Aug. '19. Engineering duties on design and cons. of NC flying boats, Washington, D. C., Buffalo and Garden City, N. Y., 29 Apr. '18; Aeronautical Draftsman. Bu. Cons. and Repair, Navy Dept., Washington, D. C., '19. (Page 244.)
- McCLURE, J. N. W. (I) 1st Lt., Cav. Pvt., Off. Tr. Camp, 21 May '17; 2d Lt., F. A. R. C., 15 Aug.; 2d Lt., Cav., 26 Oct., '17; 1st Lt. (Prov.), 25 Dec. '18; 1st Lt. (permanent), 25 Oct. '19. Ft. Harrison, Ind., 21 May '17; 14th F. A., Ft. Sill, Okla., Aug.; 8th Cav., Border Patrol, Big Bend Dist., 30 Dec.; 17th Cav., Douglas, Ariz., 24 Mch. '19; Asst. to Post Supply Officer, Schofield Barracks, Hawaii, 5 Apr. '19.
- McDANIEL, I. B. (IV) Lt. C. C., U. S. N. Sea; U. S. N. R. F., 1 July '17; Lt. (j. g.), C. C., U. S. N., 11 Nov.; Lt., 1 July '18. Under instruction, Charlestown Navy Yard, Mass., 1 July '17; Naval Academy, Annapolis, Md., Jan. '18; Asst. Outside Supt., Mare Island Navy Yard, Calif., Feb.; in charge of all submarines, Mare Island, Oct. '19. (Page 249.)
- McDONALD, K. M. (VI) 2d Lt., F. A. Pvt., Inf., 26 Apr. '18; 2d Lt., F. A. 23d Co., 156th Depot Brig., 26 Apr. '18; F. A. Off. Tr. Sch., Camp Jackson, S. C., 15 May; F. A. Cent. Off. Tr. Sch., Camp Taylor, Ky., 1 July; Radio Officer, Hq. Co., 13th Reg., F. A. Repl. Depot.
- McLAUGHLIN, T. S. (IV) 1st Lt., Engrs. 2d Lt., Aviation Sect., Sig. C., 20 Oct. '17; 1st Lt., Engrs., 9 Oct. '18. 67th, later 479th Aero Sq., 20 Oct. '17. A. E. F., 10 Jan. '18—30 Mch. '19; Resident Engr., Engrs. Base Section No. 3, Jan. '18; Dist. Engr. for Winchester, Southern England Area, 18 Apr., constructing hospitals, camps and canteens of brick and concrete. Recommended for Certificate of Merit.

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- McRAE, D. M. (III) Lt.-Col., Inf., attached General Staff. Pvt., Canadian Inf., Dec. '15; Maj., June '16; resigned in Canada and re-enlisted as a Pvt., Can. Inf., in England, June '16; again made Maj.; reduced at own request to Lt., in order to serve with troops in Belgium; resigned, Oct. '17; made Capt., Inf., U. S. A., Oct.; attached General Staff, May '18; Lt.-Col., Inf., Oct. '18. Toronto, Canada, Dec. '15. C. E. F., Oct. '16; 14th Bn., 1st Can. Div. Lectured in camps in U. S., Oct. '17. A. E. F., May '18—10 Jan. '19; G-2, 78th Div.; General Staff College, Langres, May '18; attached to 79th Div., Montfaucon, Sept.; Asst. Chief of Staff, G-2, 78th Div. Attached to General Staff, Washington, D. C., Mch. '19. Battle of Somme; Battle of Arras; Vimy Ridge, '17. St. Mihiel Offensive; Meuse-Argonne Offensive. Wounded at Vimy Ridge, Apr. '17. Military Cross (British); two citations for Distinguished Service Medal. (Pages 146 and 167.)
- MACRAE, NELSON (II) Capt., A. S. A. 1st Lt., Ord. Corps, 28 June '17; transferred to A. S., Dec.; Capt. A. S. A., Sept. '18. Springfield Armory, Mass., 28 June '17; Off. Ground Sch., Austin, Texas, Dec.; Kelly Field, San Antonio, Texas, Apr.—10 Dec. '18.
- MACY, E. W. (I) Capt., Inf. Philadelphia Military Tr. Corps, Apr.—June '17; Maj.-Commandant, The Hill Military Tr. Camp, Pottsdam, Pa., June—Sept. '17; Maj.-Commandant, The Hill School, Sept. '17—Aug. '18; Bn. Comdr. and Senior Musketry Inst., Plattsburg, N. Y., Aug.—Nov. '18. A. E. F., Apr.—Aug. '19; Amer. Red Cross Representative, 2d Div.; Representative, Central Records Office, A. E. F., June—Aug. '19.
- MAHLMAN, O. L. (XIV) 1st Lt., C. W. S. 1st Lt., Sn. C., 23 Aug. '17; C. W. S., July '18. Gas Defense Div., Astoria Light, Heat and Power Co., Long Island, in charge of production of carbon, 5 Sept. '17; Technical Development Sect., 27 Jan. '18; Officer in Charge, Central Mill, Giant Portland Cement Co., Egypt, Pa., 2 Sept. '18—20 Feb. '19. See Civilian Record.
- MAIN, THEODORE (X) Sgt. 1 cl., Q. M. C. Entered Service, '18. A. E. F., '18—'19; Hqs., 26th Div., '18. Citation from General Edwards and Citation for Croix de Guerre.
- MAKEPEACE, C. S. (II) Lt. (j. g.), U. S. N. R. F. B. M. 1 cl., U. S. N. R. F., 13 Apr. '17; Ensign, 18 Sept.; Lt. (j. g.), 20 Sept. '18. Cadet Sch., 1st Naval Dist., M. I. T., 13 Apr. '17; Asst. Engr. and later Radio Officer, U. S. S. Florida, 8th Div., U. S. Atlantic Fleet, 15 Oct., and with 6th Battle Sq., British Grand Fleet, in several submarine attacks and present at the surrender of the German High Seas Fleet.
- MARTIN, ALEXANDER (VI) 1st Lt., Sig. C. Pvt., Sig. C., 17 Oct. '17; 2d Lt., 16 Apr. '18; 1st Lt., 2 May '19. 307th Field Sig. Bn., 17 Oct. '17; 3d Sig. C. Camp, Leon Springs, Texas, 1 Jan. '18. A. E. F., 15 July '18—3 Aug. '19; Base Section No. 2, Hq. Bordeaux, 15 July '18; Sig. Officer, Camp St. Sulpice; Hq. Office, S. O. S.
- MAVERICK, G. M. (X) 1st Lt., Ord. Corps. Entered Service, 7 July '17. A. E. F., Nov. '17—Jan. '19; Office of Chief Ord. Officer, A. E. F., Feb. '18; wounded, July '18.
- *MAYERS, H. P. (I). See Roll of Honor (page 94).
- MEIGS, J. V. (V) Lt., C. W. S. Pvt., Inf., 28 Mch. '18; Lt., C. W. S., 29 Aug. '18. 151st Depot Brig., 28 Mch. '18; Officer in Charge of mfr. of sulphur chloride for mfr. of mustard gas, Edgewood Arsenal, Md., Aug. '18—Jan. '19.
- MENDELSON, HERBERT (X) 1st Lt., Ord. Corps. 2d Lt., Ord. R. C., 28 July '17; 1st Lt., Ord. Corps, 15 Oct. '18. Inspector of Ord. Equipment, Providence, R. I., 28 July '17; Boston Asst. to New England Dist. Inspector, Dec.; Control Bu., Methods and Organization Sect., Ord. Dept., Washington, D. C., 21 Jan. '18; Engr. Div., Trench Warfare Sect., June '18—3 Jan. '19.
- MILLER, R. A., JR. (X) 1st Lt., Inf. 2d Lt., Inf., '17; 1st Lt., '18. 11th Inf., 152d Depot Brig., Camp Upton, N. Y., '17. Disch., '19.
- MILLIS, RALPH (I) Capt., Engrs. 2d Lt., Engrs., 8 May '17; 1st Lt., 28 Mch. '18; Capt., 8 July '18. 306th Engrs., Columbia, S. C., 27 Aug. '17. A. E. F., July '18—June '19; on Div. Staff. St. Die Sector; Vosges; Sommedieue Sector; Meuse-Argonne Offensive; Convoy Officer with Polish Troops through Germany to Warsaw, Poland.
- MITCHELL, H. H. (VII) 1st Lt., M. C. Entered Service, '17. A. E. F., '18; C.O., Sn. Sqd. No. 1, and Asst. Div. Sn. Inspector, 44th Div., St. Aignan, Mch. '18.
- MONROE, M. A. (XI) Pvt., Engrs. 1st Repl. Engrs., 29 Aug. '18; Engr. Off. Tr. Sch., Camp Humphreys, Va. Sept.—Nov. '18. See Civilian Record.
- *MORRISON, P. G. (VI). See Roll of Honor (page 120).
- MORSE, H. G. (II) C. Q. M. (A). U. S. N. R. F. Entered Service, 1 July '18; Naval Aviation Ground School, M. I. T. See Civilian Record.
- MOXON, H. A. (X) Pvt., Balloon Div., A. S. (Flying Cadet), Balloon Sch., Ft. Omaha, 16 Nov. '17; Columbus, Ohio, Mch. '18; Ft. Omaha, June; Arcadia, Calif., July—Nov. '18. See Civilian Record.
- MUMFORD, N. V. S. (X) 1st Lt., Ord. Corps. Frankford Arsenal, Pa., 2 July '17—4 Jan. '19.
- MURDOUGH, J. H. (I) Pvt. 1 cl., A. S. Enlisted, 11 Jan. '18; active service School of Military Aeronautics, M. I. T., 1 June '18; Aviation Concentration Camp, Camp Dick, Texas, 24 Aug.; training for Aerial Observer, Ft. Monroe, Va., 10 Oct.—29 Nov. '18.
- MURPHY, J. J., JR. (III) Corp., Engrs. 101st Engrs., Camp Devens, Mass., 14 Apr. '17. A. E. F., 26 Sept. '17—28 Mch. '19; 26th Div. Toul Sector (Apremont, Seicheprey); Aisne-Marne Offensive; Pas Fini Sector; St. Mihiel Offensive; Troyon Sector; Marcheville Sector; Meuse-Argonne Offensive (Verdun).
- NAUMBURG, R. E. (II) 2d Lt., A. S. Enlisted, A. S., Dec.; 2d Lt., July '18. School for Machine Gun Instructors, Springfield Armory, Mass., 31 May '17; Civilian M. G. Inst., Sch. of Arms, Ft. Sill, Okla., Aug.; Ground Officers Tr. Camp, Kelly Field, Texas; School of Military Aeronautics, M. I. T.; Asst. Engr. Officer, 1st Provisional Wing, Hazelhurst Field, Mineola, N. Y., July '18—Jan. '19.

REGISTER OF MILITARY RECORDS

- NEILSON, H. H. (VI) Capt., Cav. Pvt. 1 cl., Aviation Sect., Sig. C., 14 June '17; 2d Lt., Cav., 9 Aug.; 1st Lt., Cav., 12 Aug.; returned to A. S., 14 May '18; Capt., A. S., 17 June; returned to Cav., Mich. '19. 5th Sq., Ground Sch., M. I. T., 14 June '17; Selfridge Field, Mich.; Ft. Leavenworth, Kan.; Camp Forrest, Tenn.; 11th Cav., Park Field, Tenn.; 8th Cav., Big Bend Dist. along Rio Grande, Texas. A. E. F., France and Germany, 19 July '19—'20.
- NELSON, F. O. (III) 2d Lt., A. S. A. Pvt., 4 May '17; 2d Lt., A. S. A., 23 Aug. '18. 1st Off. Tr. Camp, Plattsburg, N. Y., 4 May '17; School of Military Aeronautics, Austin, Texas, 8 Dec.; Camp Dick, Texas, 5 Feb. '18; Kelly Field, Texas, 5 Mch.; Eberts Field, Apr.; Wilbur Wright Field, Ohio, 25 Aug.; Payne Field, 30 Aug.; Hoboken, N. J., 1 Nov.—11 Dec. '18.
- NEWCOMBE, G. M. (II) 2d Lt., C. A. R. C. Pvt., Inf., 9 July '18; transferred to C. A. C., 9 Aug.; 2d Lt., C. A. R. C., 24 Dec. '18. 151st Depot Brig., Camp Devens, Mass., 9 July '18; C. A. Off. Sch., Ft. Monroe, Va., 9 Aug.—24 Dec. '18. See Civilian Record.
- NEWTON, B. D. (VI) 2d Lt., Ord. Corps. Motor Sect., Ord. Dept., Washington, D. C., 10 Nov. '17; Raritan Assembling Plant, N. J., '18—Jan. '19.
- NORRIS, O. C., Sea. 2 cl., U. S. N. R. F. Asst. to Dean, Naval Aviation Detachment, M. I. T., '18—'19.
- NORTH, DEXTER (X) Pvt., C. W. S. Philadelphia, Pa., Aug. '18—Feb. '19.
- OUTIERSON, C. R. (X) Corp., C. W. S. Entered Service, 1 July '18. Development Div., C. W. S., Cleveland, Ohio.
- OWEN, K. B. (II) Lt. (j. g.), U. S. N. R. F. (A.). Ensign, U. S. N. R. F. (A.), 28 Apr. '17; Lt. (j. g.), 1 Oct. '18. Naval Aviation Detachment, M. I. T., 15 Sept. '17; Naval Air Station, Pensacola, Fla., 15 Nov. A. E. F., 15 Mch.—Dec. '18; U. S. Naval Air Station, Montchic-Lacanau, France, 15 Mch. '18; U. S. Naval Air Station, Killingholme, England, 1 May. Adrift in the North Sea 15-20 May '18. (Page 242.)
- PACE, E. M., JR. (XIII) Lt. Comdr., C. C., U. S. N. Entered Service, '08. Navy Yard, Philadelphia, Pa., Apr. '17; Naval Station, Fla., May '18; Chief Engr. Officer, Naval Aircraft Factory, Philadelphia, Pa., '19.
- PAGE, ARVIN (II) 1st Lt., Ord. Corps. 2d Lt., Ord. Corps., 5 Dec. '17; 1st Lt., 3 Sept. '18. Inst., mechanical operation and maintenance of machine guns, 5 Dec. '17; preparation of fire control tables for small arms and machine guns, Blandford, Mass., and Miami, Fla., 1 July '18—3 July '19. See Civilian Record.
- PATCH, E. L. (XIII) Lt. Comdr., C. C., U. S. N. Entered Navy, '07; Ensign, Lt. (j. g.), '14; Lt., 1 July '17; Lt. Comdr., 1 July '18. Navy Yard, Portsmouth, N. H., inspection of merchant vessels and motor boats, First Naval District, and Member of Joint Vessel Board, 12 May '16; Aviation Sect., Bu. of Cons. and Repair, Navy Dept., Washington, D. C., 29 Oct. '17; Asst. Outside Supt., Hull Div., Navy Yard, Mare Island, Calif., in charge of repair and alteration to vessels and drydocking, 15 Feb. '18.
- PATTEN, D. L. (I) 1st Lt., C. A. C. 2d Lt., C. A. C., 26 Oct. '17; 1st Lt., 16 Mch. '18. Asst. Personnel Officer, 49th Arty., C. A. C., Ft. Monroe, Va., 23 July '17. A. E. F., 4 Oct. '18—12 June '19; Repl. Officer with 110th Inf., 28th Div.; Sorbonne, Paris.
- PEARSON, E. F. (VI) Engr. 3 cl., U. S. N. R. F. (R.). Training, Newport, R. I., 11 May '18; U. S. Naval Radio School, Sept. '18—21 Feb. '19.
- PETERS, E. B. (VI) Ensign, U. S. N. R. F. (A.). C. Q. M., U. S. N. R. F. (A.), '18; Ensign, Naval Aviation Detachment, M. I. T., Apr. '18; Asst. Inspector, Naval Aircraft, Gallaudet Aircraft Corp., East Greenwich, Conn., '18—'19.
- PETIT, G. H. (IV) Lt., F. A. Sgt., F. A., '17; Lt. '18. Btry. E, 10th F. A., Douglas, Ariz., '17; 3d Btry., Off. Tr. Camp, Camp Stanley, Texas, '18. A. E. F., France, '18—'19.
- PETTEE, A. D. (VI) Mr. Engr. (j. g.), Engrs. Pvt., Engrs., 17 May '18; 1st Sgt., 18 June; Sgt. 1 cl., 5 Aug.; Mr. Engr. (j. g.), 31 Oct. '18. Co. D., 29th Engrs. (Flash and Sound Ranging), 17 May '18. A. E. F., 10 July '18—24 Feb. '19; rebuilding sound ranging apparatus, factory of Le Matériel Téléphonique, Paris; Engr. Dept., American Peace Comm., Nov. '18. Citation from G. H. Q. (Pages 155 and 277.)
- PHILLIPS, J. M. (V) Pvt. (Musician), F. A. Btry. B, later Hq. Co., 128th F. A., Fort Sill, Okla., '17. A. E. F., '18.
- PINKHAM, H. P. (I) 2d Lt., A. S. A. U. S. School of Military Aeronautics, Cornell University, Ithaca, N. Y., '18; Chanute Field, July '18; Camp Dick, Dallas, Texas, 29 July; Instructors Sch., Brooks Field.
- POLLEY, E. E. (VI) 1st Lt., Engrs. 2d Lt., Engrs., 14 May '17; 1st Lt., 16 Aug. '18. 115th Engrs., 14 May '17. A. E. F., Sept. '18—June '19; Co. A, 311th Engrs., 86th Div.; served on Peace Comm. War Damages Bd., Paris, Dec. '18—Mch. '19. Member of Serbian Mission.
- PORTER, H. H. (XIV) 1st Lt. Q. M. C. 2d Lt., Inf., O. R. C., 28 Apr. '17; transferred to Q. M. C., 15 Aug.; 1st Lt., Q. M. C., 31 July '18. Tr. Sch., Camp Lee, Va., Apr. '17. A. E. F., 26 July '18—7 Sept. '19; Fire Truck and Hose Co. 344.
- PRATT, A. P. (VII) 2d Lt., Sn. C. Sch. of Sn. Engrs., Camp Greenleaf, Ga., C. O., Sn. Sqd. No. 83, 8th Div.; 3 Oct. '18; Camps Fremont, Calif., Mills, N. Y., Lee, Va. Inst. and Asst., Secretary, Harvard, M. I. T., Sch. of Public Health.
- PRATT, M. E. (II) 2d Lt., C. A. C. Pvt., C. A. C., 25 June '18; 2d Lt., 25 Sept. '18. C. A. Sch., 25 June '18; Inst., C. A. Sch., 25 Sept.—3 Dec. '18.
- PLYLE, O. B., JR. (I) 2d Lt., Engrs. Pvt., Engrs., 25 Sept. '17; Mr. Engr. (sr. gr.); 2d Lt. Off. Tr. Camp, Camp Belvoir, Va., 25 Sept. '17; Co. D, 33d Engrs., '18. A. E. F., June '18—June '19; Hq., 33d Engrs.

TECHNOLOGY'S WAR RECORD

- RALSTON, J. M. (II) 1st Lt., C. A. C. 2d Tr. Co., 3d Off. Tr. Camp, Ft. Monroe, Va., 1 Dec. '17. A. E. F., Sept. '18—Jan. '19.
- RAYMOND, T. E. (II) Capt., Ord. Corps. 1st Lt., Ord. O. R. C., 24 Oct. '17; Capt., Ord. Corps, N. A., 28 June '18. Ord. Sch. of Engr., Sandy Hook Proving Ground, N. J., Oct. '17; Mobile Gun Carriage Sect., Arty. Div., Ord. Dept., Washington, D. C., 1 Dec.; testing 75 mm. and 155 mm. caisson axles at Ford Motor Co. and Rock Island Arsenal, Jan. '18; Statistical Officer, Mobile Gun Carriage Sect., Feb.; subordinate officer in charge of development of 3.3" Gun Carriage, Model 1919, July '18—15 Mch. '19.
- REED, C. S. (II) Capt., Ord. Corps. 1st Lt., Ord. Corps, 2 Jan. '18; Capt., 12 Aug. '19. In charge ballistic acceptance tests of smokeless powder, Jan. '18; Panama Canal Zone, testing powder for 14" and 16" guns, June; Washington, D. C., Sept.; inspection, engr. designs and production of artillery ammunition, Ord. Dept., Washington, D. C., Nov. '18—'19. (Page 264.)
- REED, W. V. (XI) 1st Lt., C. A. C. Pvt., 12 May '17; 2d Lt., C. A. C., 15 Aug.; 1st Lt., 5 Apr. '18. 1st Off. Tr. Camp, 12 May '17; Ft. Standish, Mass., 29 Aug.; Hq., New England Dept., 1 Feb. '18; Asst. Adj., North Atlantic C. A. Dist., 4 Aug.; C. O., Nov.; Automatic Repl. Draft, Ft. Rodman, Mass., 9 Nov. '18—31 Jan. '19.
- REEVE, A. B. (II) 1st Lt., Engrs. Co. A, 311th Engrs. (Sappers) Dec. '17. A. E. F., '18—'19; C. O., Hq. Detachment, 311th Engrs., 86th Div., St. André de Cubzac, France.
- RENNIE, R. M. (II) Lt. (j. g.), U. S. N. R. F. (A.). Sea. 2 cl., U. S. N. R. F. (A.), 4 Dec. '17; Ensign, 8 Mch. '18; Lt. (j. g.), 1 Oct. '18. Naval Aircraft and Production Expt., Curtiss Aeroplane and Motor Co., Buffalo, N. Y., Feb. '18; Member, Technical Bd. for publications for use of U. S. N. R. F. (A.), and mechanics of Sub-Chaser Div., New York, 22 Nov. '18—Sept. '19.
- RICHARDSON, C. N. (XIV) 2d Lt., C. W. S. Pvt., Inf., 7 Sept. '17; transferred to C. W. S., 25 Oct.; Sgt., C. W. S., 1 May '18; Sgt. 1 cl., 1 July; 2d Lt., 7 Oct. '18. Co. K, 309th Inf., American University Experiment Station, Washington, D. C., work on gas mask eye-pieces and gas mask design; field experiments with war gases.
- RICHMOND, ISIDOR (IV) Ensign, U. S. N. R. F. (A.). Yeoman 2 cl., U. S. N. R. F., July '17; C. Q. M., Feb. '18; Ensign, 6 Aug. '18. Naval Draftsman, Navy Yard, Charlestown, Mass., July '17; Naval Aviation Detachment, M. J. T., Feb. '18; Flying Training, Pensacola, Fla., 1 May; Machine Gun Inst., Aug.; Patrol and Convoy Duty, Naval Air Station, Chatham, Mass., 20 Aug. '18—18 Apr. '19.
- ROBERTSON, J. D. (II) Capt., Ord. Corps. 1st Lt., Ord. R. C., 1 June '17; Capt., 27 Feb. '18. Reloading Div., American Ord. Base Depot in France, Washington, D. C., 27 Sept. '17. A. E. F., 12 Mch. '18—17 July '19; 1st Army Ammunition and Arty. Park, Domgermain, 13 June; C. O., 8 Aug.; C. O. T. Ronde Ammunition Dump, 1st Army, 12 Sept.; Corps Munitions Officer, 6th Corps, Saizerais, 22 Sept.; Villerupt, Nov. '18—July '19. St. Mihiel Offensive; Toul Sector.
- ROBINSON, CLARK (IV) Lt., A. S. A. Pvt., Off. Tr. Camp, '17; Lt. Aviation Sect., Sig. C., A. S. A., '18. 1st Off. Tr. Camp, Plattsburg, N. Y., May '17. A. E. F., '18—'19; 8th Aero Sq., Aug. '18; captured while flying, 8 Nov., afterwards escaped with French soldiers.
- ROBINSON, E. S. (VI) Lt. (j. g.), U. S. N. R. F. Ensign, U. S. N. R. F., 17 May '17; Lt. (j. g.), 24 Nov. '18; Naval Constructor, Great Lakes Training Station, May '17; Inspector for Bu. Yards and Docks, Naval Torpedo Station, Newport, R. I., Nov. '17—June '19.
- ROOD, M. H. (X) 1st Lt. (T.), F. A. Pvt., Off. Tr. Camp, 13 May '17; 2d Lt., O. R. C., 15 Aug.; 2d Lt., F. A., 26 Oct.; 1st Lt. (T.), Oct. '17. Off. Tr. Camp, Camp Harrison, Ind., 13 May '17; Btry. C, 14th F. A., Ft. Sill., Okla., 15 Aug.; Btry. A, Sch. of Fire for F. A., 7 Apr. '18; Btry. E, Ft. Sill, 23 June; Gas Sch., Camp Kendrick, 23 Oct.; Asst. to Camp Gas Officer, F. A. Brig. Firing Center, Ft. Sill, 16 Nov.; Btry. C, 14th F. A., 12 Dec. '18—17 Mch. '19.
- ROSENBERG, B. R. (I) Storekeeper 1 cl., U. S. N. R. F., 4 May—Dec. '18.
- ROSS, F. D. (IV) Ensign, U. S. N. R. F. (A.). Sea. 2 cl., U. S. N. R. F., 14 Dec. '17; Ensign (A.), Oct. '18. Naval Aviation Detachment, M. I. T., June '18. See Civilian Record.
- ROWLETT, R. S. (II) 1st Lt., Ord. Corps. 2d Lt., Ord. Corps, 11 Jan. '18; 1st Lt., 12 Sept. '18. Machine Gun Sect., Ord. Dept., 11 Jan. '18; Browning M. G. demonstration trips to Camps Cody, N. M., Travis, Texas, and Meade, Md., 1 May; supervising mfr. of 37 mm. automatic airplane cannon, United Shoe Machine Co., Lynn, Mass., 20 July. A. E. F., 19 Oct. '18—15 Sept. '19; Ord. Dept., Tours, 8 Nov. '18; equipping 6th, 36th, 78th and 82d Divs. with Browning M. G. matériel, 15 Dec.; organizing M. G. Sch. for Belgian Arty., Antwerp, 12 Apr. '19; Ord. Repair Shops, Mehun-sur-Yèvre, 25 May '19. See Civilian Record.
- RYAN, D. F. (VII) 2d Lt., F. A. F. A. Off. Tr. Sch., 7 Dec. '17; Ft. Warren, Mass., Feb. '18; 8th Btry., F. A. Cent. Off. Tr. Sch., Camp Taylor, Ky., Mch. '19.
- SADLER, W. C. (I) Capt., Engrs. Co. F, 18th Engrs. (Ry.), 5 June '17. A. E. F., 1 Aug. '17—Apr. '19.
- SAKELL, CHRISTY, Capt., reported in Greek Army, fighting in Macedonia for two years ('18).
- SANFORD, J. D. (I) Capt., Amer. Red Cross. Driver, Norton-Harjes Ambulance Corps, 16 Apr. '17; Sous-Lt., French Army; Capt., Amer. Red Cross, Sept. '18. Second in command, Base Ambulance Camp, Sandricourt; Asst. Director, Motor Transport Dept., Y. M. C. A., Sept. '17; with French and Americans in several engagements; Gassed. Supervisor of Cons., Bu. of Cons., A. R. C., Brest, Pontanzen and Kerhuan Camps, 17 Nov. '18—5 May '19.
- SAUNDERS, H. E. (XIII) Lt. Comdr., C. C., U. S. N. (Page 249.)
- SCHABACKER, H. E. (XIV) 2d Lt., C. W. S. Edgewood Arsenal, Md., 17 Sept.—28 Dec. '18.

REGISTER OF MILITARY RECORDS

- SHAKESPEARE, W. M. (XI) Maj., Ord. Corps. Capt., Ord. Corps, 5 Jan. '18; Maj., 1 Oct. '18. Ex. Officer, Trench Warfare Sect., Engr. Div., Ord. Dept., Washington, D. C., 5 Jan. '18; in charge of Branch of Trench Warfare Sect., Sept. '18—1 Feb. '19.
- SHEDD, C. E. (II) 2d Lt., Ord. Corps. Pvt., Ord. Corps, 3 Dec. '17; 2d Lt., 4 Sept. '18. Supply Div., Ord. Dept., Washington, D. C., 3 Dec. '17; Ord. Engr. Sch., Aberdeen Proving Grounds, Md., 9 June '18—Apr. '19.
- SHEPARD, H. B. (II) Lt., U. S. N. R. F. (A.). Ensign, U. S. N. R. F. (A.), 24 Oct. '17; Lt. (j. g.), 22 Mch. '18; Lt., 1 Jan. '19. In charge of Aircraft Machine Guns and Airplane Cannon, Bu. of Ord., Washington, D. C.
- SIMPSON, S. G. (V) Pvt., Inf. 152d Depot Brig., Camp Upton, N. Y., 4 Sept. '18; Inst. in Chemistry, S. A. T. C., M. I. T., 12 Oct. '18.
- SMART, G. H. (I) Corp., Inf. Co. G, 332d Inf., Camp Sherman, Ohio, '17; Disch. early in '18.
- SMELTZER, L. P. (VI) Pvt., A. S. Entered Service, 13 Aug. '18; Sch. of Aerial Photography, Kodak Park, Rochester, N. Y.; Cornell University, Ithaca, N. Y.
- *SOMMER, H. O. (VI). See Roll of Honor (pages 97 and 194).
- SPAULDING, S. M. (IV) 1st Lt., Q. M. C. Pvt., O. T. C., May '17; 2d Lt., Q. M. C., Aug.; 1st Lt., '18. 1st R. O. T. C., Ft. Sheridan, Ind., May '17; Camp Custer, Mich., Aug.; Camp Johnston, Fla., Nov.; Co. 417, Motor Supply Train, 411, Dec. A. E. F., July '18—July '19.
- SPENGLER, R. A. (VI) Capt., Ord. Corps. 1st Lt., Ord. Corps, 19 July '17; Capt., 22 Jan. '18. Mech. Engr., Watertown Arsenal, Mass., July '17—'19.
- SPOONER, G. A. (IV) 2d Lt., A. S. 1st Balloon School, Ft. Omaha, Neb., '17. A. E. F., '18—'19; Observer, 9th Balloon Co., Balloon Div., A. S., '18.
- *SPRAGUE, W. G. (IV). See Roll of Honor (pages 103 and 150).
- STAFFORD, J. W. (II) Capt., F. A. 2d Lt., F. A., 14 May '17; 1st Lt., 31 Dec.; Capt., 24 Feb. '19. 315th F. A., Petersburg, Va., May '17; Btry. E, Jan. '18. A. E. F., 26 May '18—1 June '19; Reconnaissance Officer, later Btry. Comdr. St. Mihiel Offensive; Meuse-Argonne Offensive.
- STASON, E. B. (VI) Pvt., Engrs. Co. F, 304th Engrs. Dec. '17.
- STEASE, G. M. (I) Capt., Engrs. Pvt., Inf., 5 Sept. '17; 2d Lt., Sig. C.; 1st Lt.; Capt., Engrs. Camp Lewis, Wash., 5 Sept. '17; Co. L, 362d Inf., 91st Div.; 405th Tel. Bn., Camp Lee, Va., 6 Jan. '18; Co. C, 316th Engrs., 91st Div., Vancouver Barracks, Wash., 2 May; Camp Leach, D. C., 3 July; Camp Glenburn, Md., Aug. A. E. F., 31 Aug. '18—27 Feb. '19; Co. C, 604th Engrs., 5th Corps, 1st Army. Camp Humphreys, Va., 4 Mch.—15 Oct. '19. Meuse-Argonne Offensive; Army of Occupation.
- STEVENS, L. W. (VI) Capt., A. S. A. Entered Service, '17. A. E. F., '18—'19; Zone of Advance, Aug. '18.
- STEWART, A. K. (II) 1st Lt., C. A. C. Pvt., Off. Tr. Camp, 24 Aug. '17; 2d Lt., C. A. C., 12 Nov.; 1st Lt., 18 May '18. 2d Off. Tr. Camp, Plattsburg, N. Y., Aug. '17; Ft. Monroe, Va., 22 Sept.; Ft. Greble, Coast Defense of Narragansett Bay, R. I., 15 Dec. '17—8 Mch. '19.
- STEWART, W. S. (II) 1st Lt., C. A. C. Pvt., C. A. C., 23 Aug. '17; 2d Lt., 17 Oct.; 1st Lt., 17 May '18. 2d Tr. Camp, Ft. Monroe, Va., 23 Aug. '17; 30th Co., Ft. Greble, R. I., 1 Dec.; Btry. F, 73d Arty., C. A. C., Sept. A. E. F., 13 Sept. '18—23 May '19; served with Ry. Arty., Ry. Base, Haussimont; Casual, S. O. S., '19. Army of Occupation.
- STONE, LEONARD (II) Capt., Marine C. 2d Lt., Marine C., 22 May '17; 1st Lt., 16 Aug.; Capt., 1 July '18. Paris Island, S. C., 16 June '17; Off. Tr. Sch., 16 July; 85th Co., 10th Regt. Mobile Arty. Force, Marine C., Oct.; 130th Co., 11th Regt. Arty., Jan. '18; C. O., 131st Co., Feb.; converted to Inf., Sept. A. E. F., Oct. '18—6 Aug. '19; General Intermediate Supply Depot, Gievres, 1 Nov. '18. Naval Operating Base, Hampton Roads, Va., Aug. '19; Quantico, 11 Aug. '19.
- STORM, A. E. (V) Sgt., M. C. Med. Det. 409, Telegraph Bn., Sig. C., 8 June '17. A. E. F., 12 Oct. '17—14 July '19. St. Mihiel Offensive; Meuse-Argonne Offensive.
- STRANGMAN, W. A. (II) Ensign, U. S. N. R. F. Pvt., Aviation Sect., Sig. C., 20 Apr. '18; Ensign, U. S. N. R. F., 16 Nov. '18. 32d and 3d Service Co., Meteorological Sect., Texas; Test Dept., Research Sect., Naval Experimental Station, New London, Conn., Nov. '18—19 Mch. '19.
- STRIEBY, M. E. (VI) Capt., Sig. C. Co. C, 303d Field Bn., Camp Dix, N. J., '17.
- SULLY, K. M. (III) 2d Lt., Engrs. Pvt., Engrs., 14 Dec. '17; Corp., 17 Apr. '18; 1st Sgt., 30 Apr.; Sgt. 1 cl., 5 June; 2d Lt., 28 June '18. C. D and E Cos., 29th Engrs. (Flash and Sound Ranging). A. E. F., 25 Aug. '18—25 Feb. '19; 74th Engrs., 7 Dec. Pont-a-Mousson, Toul Front, 20 Oct. '18; Lorraine Front opposite Metz.
- SUTHERLAND, GEORGE (VI) 1st Lt., A. S. A. Pvt., Aviation Sect., Sig. R. C., 9 July '17; 1st Lt., A. S. A., 13 May '18. Ohio State University Aviation Ground Sch., July '17. A. E. F., 25 Sept. '17—12 Aug. '19; Flying Training, Tours, Nov. '17; Inst. in flying; observation flying on the range, Arty. Sch., Saumur, July '18; Advanced Training, Issoudun, Oct.; Aerial Gunnery Sch., St. Jean de Mont, Dec.; six weeks in hospital after a landing accident; University of Paris. (Page 156.)
- SWAIN, W. C. (I) Maj., C. A. C. 2d Lt., C. A. C., 9 Aug. '17; 1st Lt., 9 Aug.; Capt., 22 Jan. '18; Maj., 28 Sept. 2d Tr. Camp, Ft. Monroe, Va., Aug. '17. A. E. F., 10 Nov. '17—8 June '18; Hvy. Arty. Sch., Nov. '17; Btry. C, 51st Arty., Mch. '18. U. S. A., 8 June—6 Oct. '18; Inst. Btry. E, 50th Regt., Camp Eustis, Va., June. A. E. F., 6 Oct. '18—16 Aug. '19; with Engrs., Kerhoun Hospital Center; in charge Repl. Camp, St. Aignan; Le Mans, Feb. '19. Toul Sector, 1 Apr.—25 May '18.

TECHNOLOGY'S WAR RECORD

- THOMAS, H. von P. (X) Corp., Ord. Corps. Pvt., Ord. Corps, 15 Dec. '17; Corp., 18 Aug. '18. A. E. F., 12 June '18—28 July '19. London Sch. of Economics, England, 1 Mch. '19; France, 7 July. Toul Sector; St. Mihiel Offensive; Meuse-Argonne Offensive.
- TOWNSHEND, BAILEY (VIII) Ensign, U. S. N. R. F. (A.). C. Q. M. (A.), 4 Oct. '17; Ensign, U. S. N. R. F. (A.), 17 June '18. Inst. in Meteorology, Ground School, M. I. T., 4 Feb. '18; Aerographer, U. S. N. Air Station—Bay Shore, L. I., 27 Sept. '18; Air Station, Brunswick, Ga., 9 Dec. '18; Pensacola, Fla., 12 Mch.—27 June '19.
- TUTTLE, G. W. (II) 2d Lt., A. S. A. Pvt. 1 cl., Aviation Sect., Sig. E. R. C., 14 Dec. '17; 2d Lt., A. S. A., 18 July '18. School of Military Aeronautics, Cornell University, Ithaca, N. Y., 14 Dec. '17; Hazelhurst Field, Mineola, N. Y.; Wilbur Wright Field, Dayton, Ohio, 8 Aug. '18; Payne Field, Miss., 10 Sept.; Hoboken, N. J., 30 Oct.; 48th Aero Sq., 1st Prov. Wing, Mch. '19.
- *ULLINGER, J. P. (IV). See Roll of Honor (page 122).
- ULLIAN, H. B. (I) C. M. M., U. S. N. R. F. Entered Service, 7 Dec. '17; in charge of engr. work on cons. of Harvard Radio School, Cambridge, and Naval Fuel Depot, Boston. Disch., 7 Feb. '19. See Civilian Record.
- UPTON, F. P. (VIII) Q. M. 1 cl., U. S. N. R. F. (A.). Entered Service, 12 Apr. '17; Naval Air Station, Squantum, Mass., 9 July—12 Oct. '17. See Civilian Record.
- VILE, N. J. (II) 1st Lt., C. W. S. 1st Lt., Sn. C., 1 Mch. '18; transferred to C. W. S., Aug. '18. Gas Defense Service, Long Island Laboratory, N. Y., 1 Mch. '18—1 Mch. '19. (Page 257.)
- WALKER, K. A. (II) Sgt., M. C. Pvt. 1 cl., M. C., 31 Jan. '16; Sgt., 27 July '17. Med. Det., 104th Inf., 18 June '16. A. E. F., 2 Oct. '17—4 Apr. '19. Chemin des Dames; Toul Sector; Pas Fini Sector; Aisne-Marne Offensive; St. Mihiel Offensive; Meuse-Argonne Offensive.
- WALTER, R. B. (I) 1st Lt., F. A. 67th F. A. Brig., 42d Div., 13 May '17. A. E. F., 23 Sept. '17—29 July '19; attached as Aerial Observer to Escadrille, Spad 54, French Army, 26 Mch. '18; 12th Aero Sq., 16 May; 50th Aero Sq., 11 Sept.; Hq., 1st Army Corps, 28 Oct.; Hq., 8th Army Corps, 4 Dec. Aerial Observer and A. S. Liaison Officer in major operations with 4th, 42d, 77th, 78th, 82d and 90th Div. Champagne-Marne Defensive; Aisne-Marne Offensive; St. Mihiel Offensive; Meuse-Argonne Offensive.
- WANAMAKER, E. M. (III) Mr. Engr. (sr. gr.), Engrs., 10 Oct. '17; Corp.; Sgt.; Sgt. 1 cl., Mr. Engr. (sr. gr.). Co. A, 25th Engrs., 10 Oct. '17. A. E. F., 31 Oct. '17—6 Sept. '19; Sorbonne Detachment, University of Paris. Meuse-Argonne Offensive.
- WARD, E. V. (IV) Pvt., Off. Tr. Camp. Plattsburg, N. Y., '16; qualified 2d Off. Tr. Camp, Central Dept., '17; but was not called.
- WARSHAW, NATHANIEL (II) 2d Lt., C. A. C. Pvt., Off. Tr. Camp, 12 May '17; 2d Lt., C. A. C., 15 Aug. '17. 1st Off. Tr. Camp, Ft. Monroe, Va., 12 May '17; 55th Arty., C. A. C., Ft. Banks, Mass., 29 Aug. A. E. F., 25 Mch. '18—35 Jan. '19; Heavy Arty. Sch., Angers; Antenne Officers Sch., Clermont-Ferrand; C. O., Btry. B, 55th C. A., Beaufort. Champagne-Marne Defensive; Aisne-Marne Offensive; Oise-Aisne Offensive; Meuse-Argonne Offensive.
- WASHBURN, G. H. T. (IV) C. C. M., U. S. N. R. F. Specification Dept., Public Works, Great Lakes Tr. Sta., Ill., 22 July '18—22 Jan. '19.
- WEBSTER, D. B. (X) 1st Lt., C. A. C. 2d Lt., C. A. C.; 1st Lt., 21 Jan. '18. 3d C. A. Tr. Camp, Ft. Monroe, Va., Dec. '17; Ft. Stevens, Oregon, Apr. '18; 69th Arty., C. A. C., July. A. E. F., Aug. '18—July '19; 1st Prov. Development Bn., Repl. Depot, Jan. '19; Detachment U. S. Army Students, Trinity College, Dublin, Mch. '19. See Civilian Record.
- WELLINGTON, M. S., XI, Pvt., F. A. 301 F. A., Camp Devens, Mass., 20 Sept. '17. Disch. for physical disability, 4 Oct. '17. See Civilian Record.
- WELLMAN, H. E. (V) Ph. M. 3 cl., U. S. N. R. F. Hosp. Appr., U. S. N. R. F., 22 July '17; Ph. M. 3 cl., Nov. '18. Newport, R. I., May '18. A. E. F., Queenstown, Ireland, Aug.—Dec. '18.
- WELLS, J. B. (I) 1st Lt., Ord. Corps. Entered Service, 12 Aug. '18. Ord. Inspector, Bausch & Lomb Optical Co., Rochester, N. Y.
- WENTWORTH, W. E. (XIV) Pvt., A. S. A. Enlisted 21 Jan. '18; Ground Sch., Princeton University, Princeton, N. J., July—Nov. '18. See Civilian Record.
- WESSON, H. B. (II) C. Q. M., U. S. N. R. F. (A.).
- WHITAKER, C. G. (II) 2d Lt., Inf. Pvt., Inf., 20 Aug. '17; 2d Lt., 1 June '18. 4th Co., Off. Tr. Camp, Camp Devens, Mass., 20 Aug. '17; 11th Co., 1st Regt., 164th Depot Brig., Camp Funston, Kan., June '18; 20th Inf. 1 Nov. '18—25 Mch., '19. (Page 4.)
- WHITE, H. E. (II) Sgt., Ord. Corps. Pvt., Ord. Corps, 13 Dec. '17; Sgt., 14 Dec. '17. In charge of ballistic computation and research on small arms ammunition, Springfield Armory, Mass., 13 Dec. '17—17 Apr. '19. See Civilian Record.
- WHITE, R. H. (I) Ensign, U. S. N. R. F. U. S. N. R. F., 7 Nov. '17; Ensign, 15 May '18. Inst., Navigation-Ground Sch., M. I. T., 7 Nov. '17; helped found Ground Sch., University of Washington, 31 May '18; given higher training in Aerial Navigation by British Officers, Pensacola, Fla., 20 Sept.; returned to University of Washington, 26 Nov. '18—24 Jan. '19.
- WHITING, E. A. (II) Ensign, C. C., U. S. N. R. F. C. M. M., U. S. N. R. F. (A.), 14 Dec. '17; Ensign, 14 June '18; transferred to C. C., U. S. N. R. F., 2 July '19. Inspection and testing of airplanes, supervised first sand load test of a flying boat; Office of Inspector of Naval Aircraft, Keyport, N. J., 2 July '19. See Civilian Record.

REGISTER OF MILITARY RECORDS

- WHITNEY, H. O. (Sp.) C. Q. M., U. S. N. R. F. Enrolled, U. S. N. R. F., 15 May '17; active service, Aug.; Newport Barracks, R. I.; patrol duty off Newport, Submarine Patrol 614 (his own yacht, given to Govt.), Aug.; Nantucket, Mass., Sept.; Ex. Officer, Hq., Nantucket, Oct.; Newport, R. I., 23 May '18; in charge, Recruiting Office, Westerly, R. I., June; Newport, R. I., 28 July—3 Dec. '18.
- WHITTEMORE, H. E. (VI) Pvt., Marine C. Co. D, 22 Oct. '18—25 Jan. '19. Refused for commission in Naval Aviation as he was underweight.
- WHITTIER, ROSS (XV), Capt., Inf. 2d Lt., Inf., Apr. '17; Capt., Sept. '18. 151st Depot Brig., Camp Devens, Mass., Apr. '17; Judge Advocate, General Court Martial; Inst., R. O. T. C., Harvard University, '18.
- WILLIAMS, E. H. (II) 2d Lt., A. S. R. C. Pvt., Aviation Sect., Sig. C., 11 Sept. '18; 2d Lt., A. S. R. C., 16 Dec. '18. Sq. 8, Camp Dick, Texas, 11 Sept. '18; Sch. for Arty. Observers, Sch. of Fire, Ft. Sill, Okla., 2 Oct.; Observers Sch., Post Field, Ft. Sill, 7 Nov.—16 Dec. '18.
- WILSON, LeR. W. (IV) 2d Lt., Tank C. Pvt., Ga. Inf., June '16; 2d Lt., Ga. National Guard, 24 June '16; 2d Lt., Inf., 24 Oct. '17; transferred to Engrs., later to Tank C. 17th Inf., Chattanooga, Tenn., '17; 65th Engrs., Jan. '18, later became Tank C.; C. O. 303d Bn., Tank C., 13 May '18. A. E. F., 14 Aug. '18—9 Aug. '19; attached to B. E. F., with 10th Bn., British Tank Corps, acting with 25th British Div., around Le Cateau; 4th Brig. Tank C., Langres, Feb. '19; Bonty Sch., Chignancourt Barracks, Paris, Mch. '19.
- WILSON, R. E. (X) Maj., C. W. S. Capt., 13 Apr. '18; Maj., 13 July '18. Unit Chief, Defense, Chem. Research Sect. See Civilian Record.
- WITHERSPOON, A. C. (I) 1st Lt., C. A. C. 2d Lt., C. A. C., 24 Sept. '17; 1st Lt., 5 June '18. C. A. Tr. Sch., Ft. Monroe, Va., 24 Sept. '17; Ft. Howard, Md., 15 Dec. A. E. F., 23 Sept.—23 Dec. '18; 74th C. A. C., Maitly-sur-Marne.
- WOLFE, W. J. (XIV) 1st Lt., C. A. C. Pvt., 14 May '17; 2d Lt., Inf., 15 Aug.; transferred to C. A. C., 1 Dec.; 1st Lt., C. A. C., 16 May '18. 1st Off. Tr. Camp, Plattsburg, N. Y., 14 May '17; 39th Inf., Syracuse, N. Y. and Camp Greene, S. C., 29 Aug.; 3d Off. Tr. Camp, Ft. Monroe, Va., 1 Dec.; Inst., Gunnery and Telephony, C. A. Sch., 5 Apr. '18; Camp Eustis, Va., 20 Sept.; 57th Ammunition Tn., C. A. C., Camp Eustis, 1 Nov. '18.
- WOOD, E. C. (II) Sgt., American Ambulance Service. France, Oct. '16—May '17. Wounded. See Civilian Record.
- WOODBIDGE, D. E. (VI) 2d Lt., A. S. A. Pvt. 1 cl., 1 Aug. '17; 2d Lt., A. S. A., 21 June '18. Ground Sch., M. I. T., 1 Aug. '17. A. E. F., 27 Oct. '17—1 Jan. '19; Flying Sch., Italy, Nov. '17; Radio Sect., A. S., Paris, June '18; Inspector and Purchasing Agent, later Supply Officer, Electrical Sub-Div., Radio Sect., A. S.
- WOODRUFF, B. H., JR., (VI) 1st Lt., Engrs. Entered Service, '17; Co. E, 106th Engrs., ("Dixie Division"), Camp Wheeler, Ga., Apr. '18.
- WOODS, J. E. (XIV) Capt., Ord. Corps. Pvt., Off. Tr. Camp, 10 May '17; 2d Lt., Ord. Corps., 15 Aug.; 1st Lt., 18 Sept. '18; Capt., 27 Aug. '19. 1st Off. Tr. Camp, Plattsburg, N. Y., 10 May '17. Supervisor in charge of ballistic testing of smokeless powder all over the United States, 15 Aug. '17—'19; Asst. Chief of Explosives Sect., Ammunition Div., Ord. Dept., Washington, D. C., Oct. '19.
- WOOLLEY, C. H. (XI) 1st Lt., A. S. A. Driver, American Field Service, 14 Apr.—14 Aug. '17. Enlisted in U. S. Army, Paris, France, 17 Aug. '17; Pilot, 95th Aero Sq., Aug. '17; Flight Comdr., 49th Aero Sq., 20 Aug. '18; C. O., 49th Sq., 1 Jan. '19. Toul Sector; Aisne-Marne Offensive (Château-Thierry); St. Mihiel Offensive; Meuse-Argonne Offensive. Army Citation. P. ge 155.)
- WRIGHT, L. S. (XV) Pvt., C. A. C. Ft. Harrison, Ind., May '17; C. A. Tr. Sch., Ft. Monroe, May. Disch. on account of sickness, Aug. '17. See Civilian Record.
- WYLDE, W. A. (X) Capt., C. W. S. 1st Lt., Sn. C., N. A., 21 Sept. '17; became C. W. S., 12 Sept. '18; Capt., C. W. S., 9 Nov. '18. Tr. Sect., American University, Washington, D. C., 21 Sept. '17. A. E. F., 12 Nov. '17—14 Nov. '18; Gas Sch., 1st Corps Sch., Gondrecourt, Nov. '17; Gas Instruction with British, near Ypres, Jan. '18; with 26th Div., Feb.; Div. Gas Officer, 32d Div., Mch.; Alsace, May; Gas Officer, 91st Div., Aug. Chemin des Dames Sector; Meuse-Argonne Offensive; Ypres-Lys Offensive (Escault River). Wounded by shell fire, 2 Oct. '18.
- *WYMAN, A. T. (IV). See Roll of Honor (page 101).
- WYMAN, G. W. (VI) 2d Lt., A. S. A. Pvt. 1 cl., Aviation Sect., Sig. C., 7 Dec. '17; 2d Lt., A. S. A., 1 June '18. School of Military Aeronautics, M. I. T., 2 Mch. '18; in charge Gunnery Dept., School of Military Aeronautics, M. I. T., 25 May; Co. Officer, Asst. Sig., Supply, Ord., Cons., Maintenance, and Disbursing Officer, Camp Dick, Texas, 16 Sept.; Co. Officer, Kelly Field, Texas, 13 Nov.—26 Dec. '18. See Civilian Record.
- YOUNG, VERTREES, (II) 2d Lt., Ord. Corps. Supply Depot, Yaphank, L. I., Oct. '17. A. E. F., '17—'19; 302d Mobile Ord. Repair Shop, 77th Div., Apr. '18; G-1, 77th Div., Feb. '19.
- YUEN, TEIN, reported Ensign, Chinese Navy.
- ZAMORE, B. V. (I) 1st Lt., Engrs. Pvt., Off. Tr. Camp, 19 May '17; 2d Lt., Engrs., Aug.; 1st Lt., 1 Sept. '18. 1st Off. Tr. Sch., Ft. Leavenworth, Kansas, 19 May '17; 308th Engrs., 15 Aug.; 1st Engrs., 6 Jan. '18. A. E. F., Jan. '18—'19; 1st Div. Montdidier-Noyon Defensive; Aisne-Marne Offensive (Soissons); St. Mihiel Offensive; Meuse-Argonne Offensive (Sedan); Army of Occupation.
- ZANETTI, SILVIO (IV) Lt., A. S. A. Pvt., A. S. '17; Lt., A. S. A., '18. School of Military Aeronautics, Princeton, N. J., '17; Co. B, Detachment Flying Cadets, Kelly Field No. 2, Texas, Dec. '17; Love Field, Dallas, Texas, Aug. '18.

TECHNOLOGY'S WAR RECORD

ZEIGLER, S. J., JR. (XIII) Lt. Comdr., C. C., U. S. N. Entered Navy, '08; ship repairs and maintenance, Charlestown and New York Navy Yards, and Navy Dept., Washington, D. C., Apr. '17. A. E. F., Nov. '18—Feb. '19; Brest.

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ABELS, C. A. (VI) 2d Lt., A. S. A., Balloon Div. Flying Cadet, Collegiate Balloon School, Macon, Ga., 8 Dec. '17—17 Mch. '18; 2d Lt., 26 Aug. '18. Asst. Post Sig. Officer, Ft. Omaha, Neb., 26 Aug.; Post Sig. Officer, Ft. Crook, 12 Sept.; Telephone Inst., Camp Wise, Texas, 24 Sept. '18—30 Jan. '19.

ADAMS, C. C. (X) Pvt., C. W. S. Development Div., Cleveland, Ohio, 1 Oct.—12 Dec. '18. See Civilian Record.

ADAMS, W. E. (XV) Pvt., S. A. T. C.

AHEARN, W. J. (II) Ensign, U. S. N. R. F. (A.). M. M. 2 cl., U. S. N. R. F., 6 Sept. '17; C. Q. M. (A.), 1 Jan. '18; Ensign, Engr. Officer, 5 Apr. '18. Pensacola, Fla., Sept.—Nov. '17; Naval Aviation School, M. I. T., Dec. '17—Jan. '18; Akron, Ohio, Jan.—Apr. '18; Rockaway Beach, L. I., N. Y., Apr. '18—Apr. '19.

ALDRIN, E. E. (II, XIII) 1st Lt., C. A. C. 2d Lt., C. A. C., Oct. '17; 1st Lt., Jan. '18. Trained Btry. E, 72d Regt., C. A. C., Ft. Preble, Me.; detailed Aviation Sect., Sig. C., assigned School of Aeronautical Engineering, M. I. T., 20 June '18; Chief of School Sect., and Asst. Chief, Airplane Sect., Engr. Div., A. S.; transferred Dayton, Ohio, Feb. '19. See Civilian Record.

ALLAN, HAMISH (X) Pvt., 1st British Ambulance Unit for Italy, 1 Oct. '15. H. E. shell wound, Dec. '16.

ALLEN, C. K. (II) Capt., C. A. C. 2d Lt., C. A. C., 31 Aug. '17; 1st Lt., 15 Oct.; Capt., 20 May '18. Commanded Garrison Companies while stationed in Coast Defense of Boston, Dec. '17—Oct. '18; assigned 33d Artillery, C. A. C., Camp Eustis, Va., Oct.; Supply Officer of Regt. until demobilization, Jan. '19; commanded Garrison Co., Ft. Adams, R. I., Jan.—June '19.

ALTHOUSE, A. K. (XV) 2d Lt., Engrs. Pvt., Co. F, 1st Repl. Regt. of Engrs., 1 Aug. '18; Co. 2, Engr. Off. Tr. Sch., Camp Humphreys, Va. Disch., 18 Dec. '19. See Civilian Record.

AMES, C. E. (VI) 1st Lt., C. A. C. Pvt., M. C., 4 Oct. '17; 2d Lt., C. A. C., 26 Oct.; 1st Lt., 5 Mch. '18. 3d Off. Tr. Camp, Ft. Monroe, Va.; Coast Defense of Boston; 71st Arty., May '18. A. E. F., July '18—10 June '19; regt. trained near Angers until the armistice; Town Major in a Leave Area in the Alps, after armistice. Stationed at Ft. Strong, Boston, (Oct. '19).

AMES, N. B. (VI) 2d Lt., A. S. Candidate, Army Service Sch., Ft. Leavenworth, Kan., 26 Nov. '17; 2d Lt., Aviation Sect., Sig. R. C., 13 Feb. '18; transferred to A. S., June '18. A. E. F., 30 Apr. '18—1 Aug. '19; Sq. Radio Officer. See Civilian Record.

ANDERSON, J. W. (XI) Capt., C. A. C. 2d Lt., C. A. C., 9 Aug. '17; 1st Lt., 10 Aug.; Capt., 23 Feb. '18. Stationed at Ft. Monroe, 9 Aug.—30 Nov. '17; Materiel Officer, later in mine-laying company, Ft. Greble, R. I., 15 Dec. '17—20 Feb. '19; assigned to a motor battery, Ft. Sherman, Canal Zone, 6 Mch. '19.

ANDREWS, G. A. (XIII) Lt. Comdr., C. C., U. S. N. Midshipman, Naval Academy, Annapolis, Md., 18 June '09; Ensign, 7 June '13; Lt. (j. g.), 7 June '16; Lt., 20 Aug. '17; Lt., Comdr. C. C., U. S. N., 21 Sept. '18. Navy Yard, Boston, Mass., 9 Apr. '17; conversion, repairs, and docking of ex-German vessels Kronprinzessin Cecilie, Amerika, Cincinnati; outfitting U. S. mine planters, Shawmut and Arrostook, repair ship Bridgeport, submarine tender Savannah; repairs to torpedoed transport Mt. Vernon. (Page 234.)

ANGAS, W. M. (I) Lt., C. E. C., U. S. N. Lt. (j. g.), C. E. C., U. S. N., 27 Dec. '17; Lt., 1 July '18. At Naval Academy, Annapolis, until 8 Feb. '18; ordered to Public Works Dept., Navy Yard, Philadelphia, Pa. See Civilian Record. (Page 31.)

ARISAKA, RYCHEI, (XIII) Lt., Japanese Navy Dept. Lt. Inspector, Aeroplane Mfg. Section, Govt. Arsenal, Tokyo, Japan, from beginning of War.

*ATKINS, A. K. (XI). See Roll of Honor (page 95).

ATKINSON, C. E. (I) Capt., C. A. C. 2d Lt., C. A. C., 9 Aug. '17; 1st Lt., 9 Aug. '17; Capt., 1 Mch. '18. Inst. gunnery, Ft. Adams, R. I., and Ft. Monroe, Va., 9 Aug. '17—20 Sept. '18. A. E. F., Sept. '18: 6th Sector. Army Anti-Aircraft, Anti-Aircraft School, France; Casual, Bordeaux and Gondrecourt; assigned to Postal Service, G. H. Q., Jan.—Sept. '19; with the Liquidation Comm. in Paris, Nov. '19. Cited in local orders for efficiency in administration.

*ATKINSON, H. M., JR. (VI). See Roll of Honor (page 111).

ATWOOD, H. H., JR. (IV) Pvt., Engrs. Enlisted in 1st Corps Cadets, 11 Nov. '13; mustered into Federal service, organization becoming 101st Engrs. Disch., on account of physical disability, Sept. '17.

AYER, H. E. (IV) Sea., U. S. N. R. F. Enlisted, 7 Apr. '17; active duty, 4 Oct. '17; Camp Burrage. Received medical disch., 12 Nov. '17. See Civilian Record.

BABBITT, J. H. (I) Capt., C. A. C. 2d Lt., 8 Sept. '17; 1st Lt., 15 Oct.; Capt., 21 May '18. C. A. Tr. Camp, Ft. Monroe, Va., 11 Sept. '17; Ft. Adams, R. I., 27 Nov. '17; Ft. Greble, R. I., Camp Eustis, Va., 15 June '18, organized 13th Anti-Aircraft Btry., and received instruction in science of Anti-Aircraft Arty. A. E. F., 7 Oct. '18—7 May '19; Anti-Aircraft School, Arnonville; after armistice, Le Courneux, and later M. G. Anti-Aircraft School, Langres; convoy duty, guarding trains of supplies for the Army of Occupation, from Lifol-le-Grand, Vosges, 1 Jan. '19. Resigned, 16 July '19.

BAILEY, H. E. (XI) 2d Lt., F. A. R. C. Pvt., Inf., 26 June '18; 2d Lt., F. A. R. C., 4 Dec. '18. 153d Depot Brig., Camp Dix, N. J., 26 June '18; F. A. Cent. Off. Tr. Sch., Camp Taylor, Ky., 28 July '18. Disch., 3 Dec. '18.

REGISTER OF MILITARY RECORDS

- BAKER, R. N. S. (XIII) Lt., U. S. N. Asst. Naval Constructor, Philadelphia, Navy Yard.
- BAKEWELL, B. P. (IV) Ensign, U. S. N. R. F. (A.). Naval Aviation Detachment, Flight No. 26, M. I. T., June '18; Pensacola, Fla., Sept. '18—Jan. '19.
- BARNARD, C. T. (XI) 2d Lt., Tank C. Pvt., Off. Tr. Camp, 12 May '17; 2d Lt., Inf., 15 Aug.; transferred to Tank C., 18 July '18. First Off. Tr. Camp, Plattsburg, N. Y., 12 May '17; Co. C, 104th Inf., 26th Div., 10 Sept. '17. A. E. F., 5 Oct. '17—May '19; training near Neufchateau, Vosges, Nov. '17—Feb. '18; Tank Sch., 18 July—28 Aug.; Liaison Officer, 12-16 Sept.; Inst., Tank School. Chemin des Dames Sector, 12 Feb.—23 Mch. '18; Toul Sector, 1 Apr.—20 June; St. Mihiel Offensive.
- BARRETT, L. W. (I) Pvt., M. C.
- BARRY, E. F. (VI) Capt., C. A. C. 2d Lt., C. A. C., 7 Aug. '17; 1st Lt., 26 Oct., '17; Capt., 5 July '18. Served in various capacities at Ft. Winfield Scott, Ft. Monroe, Jackson Barracks and Ft. Crockett. A. E. F., since 15 July, '19; Hq., 36th Arty., C. A. C.
- BASCH, J. J. (X) M. M. 2 cl., U. S. N. R. F. U. S. Sub-Chaser No. 97. A. E. F., 1 July '18—15 Feb. '19; stationed at Plymouth, Eng.
- BATCHELDER, S. S. (XV) 1st Lt., A. S. Pvt., Off. Tr. Camp, 12 May '17; 1st Lt., A. S. 1st Off. Tr. Camp, Plattsburg, N. Y., May '17; transferred to Aviation Sect., Sig. C., June; Ground Sch., M. I. T. A. E. F., Aug. '17—Jan. '19; Ground Sch., conducted by Royal Flying Corps, Oxford, Eng.; attached 64th Sq., Royal Air Force, in France, July '18; withdrawn to enter American A. S., 25th Aero Sq., 2d Army Sept., '18. Somme Offensive, Aug. '18; Cambrai Sector, Sept. '18.
- BATSCHY, J. M. (IV) Capt., Engrs. 1st Lt., Inf., 27 Aug. '17; Capt., Engrs., 21 Feb. '19. A. E. F., 8 Jan. '18—10 July '19; Asst. Adj., Blois, France, 2 Feb. '18; Ex. Officer, Asst. Adj., Gievres, France, 22 Feb.; Asst. Regulating Officer, St. Dizier, 15 Oct. '18; Amer. Regulating Officer, Coblenz, Germany, 6 Jan. '19; G-4, G. H. Q., Chaumont, 19 Apr.—June '19. Individual Citation.
- BATTIS, J. T. W. (II) Pvt., Engrs. Ft. Slocum, N. Y., 13 Dec. '17. Disch., 21 Jan. '18. See Civilian Record.
- BAXTER, H. M. (VI) Pvt., F. A. 9th Co., 154th Depot Brig., 1 Apr. '18; 77 Div. Casuals, 27 Apr. '18. A. E. F., 23 May '18—6 July '19; 321 F. A., Btry. B, 5 July; 321 F. A., Supply Co., 5 Oct.; Sorbonne Detachment, 27 Feb. '19; Brest Casual Co., 30 June '19. St. Mihiel Offensive; Meuse-Argonne Offensive.
- BEADLE, W. J. (II) 2d Lt., Inf. Pvt., Inst., 18 Nov. '17; Sgt., Jan. '18; 2d Lt., 25 Sept. '18. A. E. F., 19 May '18—19 Sept. '19; Liaison Inst., 307th M. G. Bn., Apr.—June '18; Army Candidates Sch., Langres, 28 July; 127th Inf., 32d Div., 25 Sept.; Musketry Inst., 3d Bn., 127th Inf., Feb. '19; Inst. in Mechanical Engr., A. E. F., University, Beanne, Mch.—June '19. Occupation of Bailleul Sector (attached 9th Scottish M. G. Bn.), 25 June—1 July; Meuse-Argonne Offensive; Army of Occupation.
- BEALER, W. P. (IV) 2d Lt., Engr. O. R. C. Pvt., Engr. Off. Tr. Sch., 24 July '18; Sgt., 140th Engrs., 15 Nov. '18.
- BEATTIE, J. A. (X) Pvt., C. W. S. Entered Service, 24 July '18; Chem. Engr., Nitrate Div., Ord. Dept., Geophysical Laboratory, Washington, D. C., 1 Dec. '18, research on the Haber and Bucher processes for fixation of nitrogen.
- BEDELL, A. S. (VII, XI) 1st Lt., Amer. Red Cross. Sanitarian, Sn. Service, Amer. Red Cross Comm. to Greece, 1 Oct. '18—25 Apr. '19.
- BELL, D. E. (XV) 1st Lt., Inf. Pvt., Off. Tr. Camp, 8 May '17; 2d Lt., Inf., 15 Aug.; 2d Lt., 26 Oct.; 1st Lt., 17 June '18. 1st Off. Tr. Camp, Plattsburg, N. Y., 8 May '17; 39th Inf., Syracuse, N. Y., 15 Aug.; Charlotte, N. C., 5 Oct.; Aerial Observer, Hq., 4th Div., Ft. Sill, Okla., 28 Mch. '18. A. E. F., 2 May—29 Dec. '18; attached Sq. No. 9, Royal Air Force, participating in all engagements, 14 May—4 July; shot in head and fell 1,000 feet, 4 July, not returned to active flying; sent to rest camp, Winchester, Eng., 5 Oct. '18.
- BELL, K. E. (X) 2d Lt., C. W. S. Pvt., C. W. S., Edgewood Arsenal, 16 Sept. '18; 2d Lt., 14 Oct. '18. Disch., 27 May '19. See Civilian Record.
- BENSON, A. F. (II) Capt., C. A. C. 2d Lt., C. A. C., 10 Sept. '17; 1st Lt., 10 Sept.; Capt., 1 Feb. '18. Supply Officer, 46 Arty., C. A. C. A. E. F., 12 Oct. '18—6 May '19; Btry. Comdr., 46th Arty., C. A. C.; St. Aignan, 1 Jan. '19; Ex. Officer of Building Staff, Camp Pontanezen, Brest, Feb.; Camp Q. M., Camp de la Rape, Apr. '19. Resigned, Ft. Worden, Wash., 22 July '19. (Page 12 and 60.)
- BERNARD, FREDERICK (VII) 1st Lt., Q. M. C. Pvt., Off. Tr. Camp, 15 May '17; 2d Lt., Q. M. C., 15 Aug.; 1st Lt., 30 Sept. '18. 1st Off. Tr. Camp, Plattsburg, N. Y., 15 May '17; Q. M. C., 15 Aug., on duty with Operations Div. Army Transport Service, Hoboken, N. J., until 13 May '19.
- BERTELSON, P. J. (IX) Ensign, C. E. C., U. S. N. R. F. U. S. S. Covington, 15 Oct. '17; made three trips to St. Nazaire and Brest, France; Asst. Naval Constructor, Hull Div., Navy Yard, N. Y.; in charge of fitting out the transports Ruidjian, Plattsburg, and Kroonland, 28 Mch. '18; Asst. Outside Supt., Hull Div., Navy Yard, N. Y., later Hull Member of Joint Merchant Vessel Bd., N. Y. Minor submarine engagements. See Civilian Record.
- BEST, T. G. (IV) 1st Lt., M. T. C. Pvt., American Field Ambulance Service, 21 July '17; Sgt., Amer. Red Cross, 1 Mch. '18; 1st Lt., M. T. C., 18 Dec. '18. Service in France, 23 July '17—15 July '18; Sect. 526, American Field Ambulance Service, 21 July '17; Motor Transport Service, Advanced Sect., Amer. Red Cross in France, 1 Nov. '17; stationed in Lorraine Sector. U. S., 15 July '18—1 Jan. '19; Off. Tr. Sch., Camp Johnston, Fla., 8 Aug. '18; M. T. C., '18 Dec. '18. Aisne Sector; Malmaison Offensive, 23 Oct. '17; Lorraine Sector, Nov. '17; Toul Sector, Apr. '18.
- BLACK, C. M. (I) 1st Lt., C. A. C. 2d Lt., C. A. C., 26 Oct. '17; 1st Lt., Mch. '18. 71st Arty., C. A. C. A. E. F., Aug. '18—Feb. '19.

TECHNOLOGY'S WAR RECORD

- BLANCHARD, R. H. (X) Sgt., C. W. S. Pvt., C. W. S., 17 May '18; Sgt., 1 Aug.; recommended for 2d Lt., 11 Oct. Co. L, 3d Bn., C. W. S., Ft. Slocum, N. Y., 17 May '18; Edgewood Arsenal, Md., 12 June; Asst. in charge of a shift at the ethylene plant. Disch., 24 Dec. '19.
- BONNELL, W. E. (II) Sgt., Engrs. Pvt., Engrs., 9 June '17; Wagoner; Corp.; Sgt., July '18. A. E. F., 27 July '17—12 June '19; Dispatch Rider, Hq. Co., 14th Engrs.; Inspection Dept., 803 Aero Repair Sq., Romorantin, France.
- BRAYTON, H. M. (II) Capt., Ord. Corps. 1st Lt., Arty. Ammunition Sect., Ord. Dept., 1 Aug. '17; Capt., 23 Jan. '18. Served at Frankford Arsenal, Philadelphia, Pa., 1 Aug. '17—24 Dec. '18; Experimental and Designing Engr., on Arty. Ammunition.
- BROCK, M. C. (XV) Pvt., Tank C., 302d Bn., Tank C., Camp Colt, Gettysburg, Pa., 17 Oct. '18; 4th Off. Tr. Sch., 18 Oct. '18. Disch., 8 Dec. '18. See Civilian Record.
- BROOKS, A. R. (XIV) Capt., A. S. A., (Ace). Pvt., Aviation Sect., Sig. C., 23 July '18; 2d Lt., A. S. A., 25 Feb. '18; 1st Lt., 6 Nov.; Capt., 23 Feb. '19. Active Service, 1 Sept.; detailed to School of Military Aeronautics, Toronto, Canada, 18 Sept. A. E. F., 12 Mch. '18—29 July '19; Pilot, 130th Aero Sq.; Flight Comdr., 22d Aero Sq., 12 Aug. '18; 47th Aero Sq. C. O. 1st Pursuit Group, 95th Aero Sq., Kelly Field, Texas, July '19 to date (Oct. '19). Toul Sector; St. Mihiel Offensive; Meuse-Argonne Offensive. Distinguished Service Cross; Cited by 1st Army Air Service Comdr. (Pages 311 and 202.)
- BROOKS, E. P. (XV) 1st Lt., Engrs. Pvt., Off. Tr. Camp, 11 May '17; 2d Lt., Engrs., 15 Aug.; 1st Lt., 12 Oct. '18. 1st Off. Tr. Camp, Plattsburg, N. Y., 11 May '17; 1st U. S. Engrs., 15 Aug. A. E. F., 7 Sept. '17—18 July '19; served with 1st Engrs. operating with 1st Div., except seven weeks, as Asst. G-3, Div. Staff; attended Sorbonne, Paris. Northwest-of-Toul Sector, 15 Jan.—30 Mch. '18; Montdidier-Noyon Defensive; Aisne-Marne Offensive; Saizerais Sector; St. Mihiel Offensive; Meuse-Argonne Offensive; Army of Occupation, Coblenz. Distinguished Service Cross. (Pages 132 and 179.)
- BROWN, D. M. (IV) Sgt. 1 cl., A. S. Pvt., A. S., 13 Feb. '18; Sgt. 1 cl. 499th Aero Cons. Sq., Langley Field. A. E. F., 7 Oct. '18—7 Mch. '19. See Civilian Record.
- BRUSH, C. F. (VI) 1st Lt., Ord. O. R. C. Enlisted June '17; active service, Sept. '17. In charge of Oxidation Dept., U. S. Nitrate Plant No. 1, Sheffield, Ala., last four months of service.
- BUFORD, A. W. (I) 2d Lt., F. A. Pvt., 3d Off. Tr. Camp, Camp Pike, Ark., 5 Jan. '18; 2d Lt., F. A., 21 June '18. A. E. F., June '18—July '19; Saumur Arty. Sch., eight weeks; 316th F. A., Sept.; four months' course of instruction in Economics, Oxford University, Eng., Feb. '19.
- BURK, H. G. (VI) 2d Lt., C. A. C. Pvt., C. A. C. Specialist Sch., Ft. Monroe, Va., Dec. '17; Sgt. 1 cl., June '18; 2d Lt., Nov. '18. Served at Ft. Monroe, Va., and Ft. McArthur, Calif.
- BUTTERWORTH, F. L. (IV) Lt. (j. g.), C. C., U. S. N. Commissioned 1 Dec. '18. See Civilian Record.
- CADY, LOWELL (I) Lt., U. S. N. Lt. (j. g.), U. S. N., 1 Dec. '17; Lt., 3 July '18. Cons. C., U. S. Navy Yard, Philadelphia, Pa., since 14 Jan. '18.
- CAMPION, W. L. (XI) Corp., Engrs. Pvt., May '18; Corp., Engrs. A. E. F., July '18—June '19; Co. C, 301st Engrs., attached to 4th Army Corps. St. Mihiel Offensive; Toul sector; Army of Occupation until May '19.
- CANAN, W. D. (VI) Lt., U. S. Naval Auxiliary Res. Lt. (j. g.), U. S. N. Aux. Res., 16 May '18; Lt., 16 Jan. '19. Head of Boiler Dept., and advanced course work, U. S. N. Steam Engr. Sch., Hoboken, N. J., 18 May '18—1 June '19.
- CARGILL, W. W. (I) Lt., C. C., U. S. N. Lt. (j. g.), U. S. N., 29 Nov. '17; Lt., 1 July '19. Cons. C., U. S. N., Washington, D. C., and Puget Sound Navy Yard, Bremerton, Wash.
- CARLTON, A. C. (III) Capt., Inf. Pvt., 4th Prov. Off. Bn., Ft. Leavenworth, Kan., 9 Aug. '17; 2d Lt., Inf., Nov.; 1st Lt., Mch. '18; Capt., June '18. U. S., 9 Aug. '17—4 Aug. '19; 3d Inf.; patrol work on the border, Camp Eagle Pass, Texas, 15 Nov. '17; later, guarding mining camps, Globe, Ariz.
- CARROLL, P. L. (VI) Lt. Comdr., U. S. N. Entered Service, May '05; during war attached to U.S.S. Mt. Vernon and U.S.S. New Mexico.
- CARSON, F. S. (IV) Sapper, Engrs. (Canadian). Pvt., Engrs., 15 July '17; Corp., became Sapper on going overseas. St. Johns, P. Q., 15 July '17—30 Jan. '18. C. E. F., 15 Feb. '18—17 Apr. '19; Canadian Engrs. Tr. Det., Seaford, Sussex, Eng., 15 Feb., France, 22 June '18; 11th Canadian Engr. Bn. Gassed, 2 Nov. '18; in hospitals in England, 6 Nov. '18—17 Apr. '19. Amiens; Arras; Canal du Nord; Cambrai; Valenciennes.
- CARTER, A. A. (VI) Sgt., Inf. Pvt., Depot Brig., 29 Apr. '18; Corp. Inf., 19 Nov.; Sgt., 23 Apr. '19. U. S., 29 Apr. '18 to date (Aug. '19). Provost Guard Co., Camp Devens, Mass.
- CATLETT, R. H. (X) 1st Lt., Engrs. 2d Lt., Inf., 15 July '17; 1st Lt., 25 July; transferred to Engrs., 13 Feb. '18. Co. I, 1st Va. Inf.; Co. A, 116th Inf.; 30th Engrs., 13 Feb. '18. A. E. F., 23 Feb. '18—2 Feb. '19. Gas Offensive, Flirey-Pont-à-Meussion, June '18; Aisne-Marne Offensive (Château-Thierry); Gas Offensive Operations on the Vesle, 15 Aug.—15 Sept.; Meuse-Argonne Offensive. Wounded by piece of H. E. shell, 6 Oct. '18.
- CHASE, A. W. (X) Corp., C. W. S. Pvt., Gas Defense Service, later C. W. S., 30 Mch. '18; Pvt. 1 cl., 24 May; Corp., 1 Apr. '19. Control Laboratory, Gas Defense Service, Long Island City, 30 Mch. '18; Overseas Repair Sect. No. 2, Gas Defense Service, Camp Dix and Camp Merritt, 25 May. A. E. F., 30 June '18—21 June '19; Gas Mask Salvage Factory, Chateauroux, 23 July; detached, had charge of two warehouses full of gas masks and C. W. S. material, Camp St. Sulpice, near Bordeaux, 1 Aug. '18—2 June '19.
- CHASE, N. C. (IV) Corp., C. W. S. Pvt., Inf., 21 Sept. '17; Corp., C. W. S., Nov. U. S., 21 Sept. '17—Mch. '19; Co. E, 301st Inf., Camp Devens, Mass.; C. W. S., Astoria, L. I., N. Y.

REGISTER OF MILITARY RECORDS

- CHILDS, K. M. (II) Sgt., Sig. C. A. E. F., 13th Co., 1st Motor Mechanics Rgt., Sig. C.; London School of Economics, Clare Market, London, Eng., spring '19.
- CHILDS, P. D. (IV) Lt., C. C., U. S. N. Lt. (j. g.), C. C. U. S. N., 27 Dec. '17; Lt., 25 Sept. '18. Asst. Naval Constructor, in office of Superintending Constructor, Quincy, Mass., Dec. '17—to date (Aug. '19); in charge of outside inspection work on destroyers.
- CHISHOLM, S. L. (V) Mr. Engr. (sr. gr.), C. W. S. Pvt., Inf., 4 Oct. '17; Corp., Sn. C., Gas Defense Service, Feb. '18; Sgt. 1 cl., Chemical Service Sect., May; Mr. Engr. (sr. gr.), C. W. S., Jan. '19. Depot Brig., 76th Div., Camp Devens, Mass., 4 Oct. '17; Sn. C., Gas Defense Service, Washington, D. C., 23 Oct.; research work with Soda Lime Unit, Defense Research Sect., Research Div., C. W. S., to 13 May '19.
- CHRISTENSEN, ABBY W. (IV) Sec., Y. M. C. A. Entered Service, Nov. '18. France, 25 Dec. '18—3 July '19; organized and conducted a wet canteen in the Y. M. C. A. hotel for enlisted men at Nancy. (P ge 298.)
- CHURCH, V. S. (VI) Lt. (j. g.), U. S. N. (T.) Sea. 1 cl., U. S. N. R. F., 6 Apr. '17; Ensign, U. S. N. R. F., 21 Sept.; Ensign, U. S. N. (T.), 1 Feb. '18; Lt. (j. g.), U. S. N. (T.), 15 Aug. '18. Navy Yard, Boston, Mass., 6 Apr. '17; 2d Reserve Officers' Class, Naval Academy, Annapolis, 11 Oct.; Bu. of Naval Operations, Navy Dept., Washington, D. C. 24 May '18—11 June '19.
- CIAMPOLINI, ETTORE (VII) Physician, Italian Army; left for Italy May '17.
- CIANCIOLO, P. J. (I) Sgt., Engrs. Pvt., 301st Engrs., 23 Sept. '17; Corp., June '18; Sgt., Aug. '18. A. E. F., 14 July '18—23 July '19; on special duty at front to draw plans of strong German field fortifications; University of Montpellier, 1 Mch.—30 June '19. Toul Sector; St. Mihiel Offensive; Army of Occupation.
- CLARK, E. M. (X) 2d Lt., C. W. S. Pvt., 21 Sept. '17; 2d Lt., C. W. S., 1 May '18. Camp Devens, Mass., 21 Sept. '17; Chem. Service Sect., Washington, D. C., 1 Nov. '17—1 Mch. '19.
- CLARK, W. A. (XI) Capt., Engrs. Pvt., Engr. Off. Tr. Camp, 16 Oct. '17; 2d Lt., Engrs., Jan. '18; 1st Lt. 28 Feb.; Capt., 22 Apr. '18. Off. Tr. Camp, 16 Oct. '17; Co. A, 303d Engrs., Camp Dix, N. J., Jan. '18; Camp Laurel, Md., 22 Apr.; Co. B, 8th Engr. Tr. Regt., Camp Humphreys, Va., 5 Oct.; 2d Recruit Bn., Camp Forrest, Ga., 23 Oct.; Ft. Mills, P. I., 18 Feb. '19 to date (Dec. '19).
- CLARKSON, J. J. (II) 1st Lt., C. A. C. 2d Lt., C. A. C., 1 Dec. '17; 1st Lt., 24 Jan. '18. Ft. Monroe, Va.; 36th Arty., C. A. C., 56th Am. Tn., C. A. C.; Ft. Taylor, Key West, Fla. U. S., 1 Dec. '17—29 July '19. See Civilian Record.
- CLAYTON, H. C. (XIV) Lt. (j. g.), U. S. N. R. F. (A.). Q. M. 1 cl., U. S. N. R. F. (A.), 10 May '17; Ensign, 18 Feb. '18; Lt. (j. g.), 1 Apr. '19. Naval Aviation Detachment, M. I. T., 23 July '17; Flying Sch., Hampton Roads, Va., 15 Sept.; Flying Sch., Pensacola, Fla., 11 Jan. '18. A. E. F., 15 Mch. '18—5 Feb. '19; Submarine Bombing Sch., Montchic, France, 3 Apr.; Italian Army Sch. of Aviation, Malpensa, Italy, 19 June; on duty with U. S. Naval Aviation Forces in Italy, 19 June—26 Oct.; stationed with Italian Army, Gioia del Colle, Italy, 31 July—15 Aug.; Northern Bombing Group near Calais, 29 Oct. '18. U. S. Naval Air Station, Chatham, Mass., 28 Feb.—11 June '19.
- CLAYTON, L. L. (XIV) Capt., C. A. C. 2d Lt., R. C., 27 Oct. '16; 1st Lt., C. A. C., O. R. C.; Capt., C. A. C., 11 May '18. 1st C. A. Off. Tr. Camp, May '17; Coast Defense of Boston Harbor, Ft. Revere, Aug. '17; 55th Arty., C. A. C., Ft. Revere, 1 Dec. '17—31 Dec. '18; Anti-Aircraft Service, 9 June '18. U. S. 12 Jan. '19 to date (Aug. '19); detailed to Sig. C., Camp Vail, N. J., 6 June '19. (Page 4.)
- COBURN, C. L. (I) Ensign, C. C., U. S. N. R. F. Ship Draftsman, U. S. Navy Yard, Charlestown, Mass., 2 July—1 Dec. '17; Ensign, C. C., U. S. N. R. F., 4 Dec. '17. Naval Academy, Annapolis, 5 Dec.; Puget Sound Navy Yard, Wash., 9 Jan. '18; Asst. to Planning Supt., in charge of much repair work, and new cons., as Asst. to Outside Supt., handled work relating to the personnel of the Hull Div. Shops Inactive duty, 6 Mch. '19.
- COCHRANE, CLARENCE (II) C. M. M., U. S. N. M. M. 1 cl., U. S. N., 4 Apr. '17; C. M. M., Dec. '18. A. E. F. Dec. '17—Aug. '19; served aboard U. S. tug Concord, which brought into port several torpededo cargo ships.
- COFFIN, J. R. (VI) 1st Lt., A. S. A. Flying Cadet, A. S., 13 July '17; 1st Lt., 13 May '18. A. E. F., 1 Nov. '17—4 Feb. '19; 3d Aviation Instruction Center; 2d Aviation Instruction Center; 104th Aero Sq. St. Mihiel Offensive; Meuse-Argonne Offensive. Cited by A. S. Comdr., First Army. (Page 55.)
- COLBY, C. W. (IV) Lt., C. C., U. S. N. Lt. (j. g.), C. C., U. S. N., 1 Dec. '17; Lt., Nov. '18. Boston Navy Yard, 1 Dec. '17; Annapolis, Md.; Asst. New Work Supt., Mare Island Navy Yard, Calif., 21 Jan. '18 to date (Oct. '19); work in connection with new cons., the battleship California, and destroyers. 'ge 249.
- COLLEARY, W. B. (IV) Ensign, U. S. N. R. F. Coxswain, U. S. N. R. F., 18 July '17; C. B. M., 15 Oct.; Ensign, 11 Feb. '18. Junior Watch and Division Officer, U. S. S. Connecticut, Feb. '18; Inst., Drill and Disciplinary Officer, Off. Material Sch., Cambridge, Mass., July '18—Apr. '19.
- COLLIER, G. W. (VI) Pvt. 1 cl., Sig. C. Enlisted, 21 June '17; active service, 8 Nov.; 133d Field Sig. Bn. Camp Funston, Kan., 8 Nov. '17; assisted in work of Sig. Off. Tr. Sch., Camp Morse, Texas. A. E. F., 7 Oct. '18—3 July '19; transferred to 58th Service Co., Sig. C., 27 Dec. '18; detached service, in American Embarkation Center, Le Mans, Sarthe, and area, for six months.
- COLLINS, H. W. (X) Capt., Engrs. Pvt., Off. Tr. Sch., 10 Nov. '17; Prov. 1st Lt., Engrs.; Capt. Ft. Leavenworth, Kan.; Engr. Off. Tr. Camp, Camp Lee, Va.; 315th Engrs., Camp Travis, Texas. A. E. F., 13 June '18—27 June '19; 302d Engrs.; transferred to 602d Engrs., 29 Mch. '19. Meuse-Argonne Offensive.
- CONATY, F. S. (I) Capt., F. A. 2d Lt., F. A., 9 Aug. '17; 1st Lt., 15 Sept. '17; Capt., 11 July '18. 3d F. A. Ft. Leavenworth, Kan., Ft. McClellan, Ill. A. E. F., 14 July '18—19 June '19; Btry F., 3d F. A.; Courier Service, Paris. 3d F. A., Camp Grant, Ala., 20 June '19 to date (Oct. '19).

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- CONNOLLY, J. P. (XII) 2d Lt., M. T. C. Pvt., Motor Transport Service, Q. M. C., 17 Dec. '17; 2d Lt., 11 July '18; 2d Lt., M. T. C., 1 Aug. '18. Mechanical Repair Shop Unit 506, Motor Transport Service, Q. M. C., 17 Dec. '17; trade classification work and recruiting service for M. T. C., 11 July—27 Dec. '18.
- *COUCH, E. S. (IV). See Roll of Honor (page 117).
- CREIGHTON, S. H., JR. (II) Lt. (j. g.), U. S. N. Entered Service, 18 Apr. '18; Engr. Officer, U. S. S. West Bridge; torpedoed 500 miles off coast of France, Aug. '18; on duty, U. S. N. Sch. of Turbine Engr., Carnegie Institution of Technology, Pittsburgh, Pa., 25 Nov. '18—4 Aug. '19.
- CRISP, F. G. (XIII) Lt. Comdr., C. C., U. S. N., Navy Yard, New York.
- CRISTAL, P. N. (I) Capt., Engrs. 2d Lt., Engrs., 16 Oct. '17; 1st Lt., 22 Feb. '18; Capt. (T.), Apr. '18. Ft. Leavenworth, Kan.; 309th Engrs., 84th Div., Jan. '18; Camp Adj., Camp Leach, Washington, D. C., July; Aide-de-Camp to Chief of Engrs., U. S. A., Washington, D. C., 21 Nov.; Student, Post Graduate Engr. Sch., U. S. A., Camp Humphreys, Va., 1 Apr. '19 to date (Sept. '19). A. E. F., June—Sept. '19.
- CROSBY, G. E. (I) Pvt., Engrs. 6th Recruit Co., Ft. Slocum, N. Y., June '18; 301st Engrs., Camp Devens, Mass. A. E. F., 13 July '18—13 June '19. St. Mihiel Offensive; Meuse-Argonne Offensive; Army of Occupation.
- CROSBY, I. B. (XII) Pvt. 1 cl., C. W. S. Pvt., 6 Mch. '18; transferred to Development Div., C. W. S., 25 Aug. '18. Student, 3d Sig. Service Co., University of Vt., until middle of July; Inst. in Radio, until 25 Aug.; Laboratory, Nela Park, Cleveland, Ohio, Sept.; transferred to a "Gas Factory" near Cleveland. Disch., 14 Dec. '18.
- CROSBY, W. A. (IV) Bn. Sgt. Maj., Inf. Hq. Co., Inf. Repl. and Tr. Troops, Camp Grant, Ill., 16 May '18—7 Jan. '19.
- CUNNINGHAM, LAWRENCE (VI) Ensign, U. S. N. R. F. M. M. 2 cl., U. S. N. R. F., 3 Apr. '17; Ensign, 18 Sept. '17. Submarine Patrol Service and Mine Force, Atlantic Fleet; Newport, R. I., 3 Apr. '17; New Bedford, Mass., June; Newport, R. I., 1 Oct. A. E. F., 13 Nov. '17—20 Feb. '19; on Adm. Sims' Communication Staff, London, until 1 Feb. '18; Mine Force, Invergordon, Scotland, 1 Feb. '18—10 Jan. '19. Inactive duty, 10 Mch. '19.
- CURTIN, E. W. (XV) Capt., C. A. C. Driver, Sect. No. 2, American Ambulance Service, Pont-à-Mousson, France, Jan.—July '15. Candidate Off. Tr. Camp, June '17; 2d Lt., C. A. C., 27 Nov.; 1st Lt., 23 Sept. '18; Capt., 2 Nov. '18. Plattsburg Camp, June '17; Ft. Monroe, Va. A. E. F., Nov. '17—Nov. '18; C. A. C.; Anti-Aircraft investigation work; Inst., Saumur Arty. Sch. Bois-le-Prêtre, Feb. '18. (Page 85.)
- CURTIS, B. C. (I) 1st Lt., F. A. American Ambulance Service, French Army, 10 June '16—1 Apr. '17. 2d Lt., F. A., 25 Oct. '17; 1st Lt., 25 Oct. '17. 16th F. A., Ft. Leavenworth, Kan.; Camp Greene, N. C., Apr. '18. A. E. F., 9 May '18—18 July '19; 16th F. A., Tours; Sorbonne, Paris, spring, '19. Vesle Sector; St. Mihiel Offensive; Meuse-Argonne Offensive.
- DAVIS, F. B. (X) 2d Lt., A. S. A. Cadet, A. S., 17 Nov. '17; 2d Lt., A. S. A., 15 June '18. U. S., 17 Nov. '17—6 Jan. '19; Flying Inst., School of Military Aeronautics, Scott Field, 15 June '18.
- DAVIS, LAWRENCE (II) 1st Lt., Ord. Corps. 2d Lt., Ord. R. C., 31 Dec. '17; 1st Lt., Ord. Corps, 13 Sept. '18. Student, M. G. Sch., Springfield Armory; Inst. of machine guns; Inspector of machine guns, travelled throughout U. S.; Machine Gun and Small Arms Sect., Engr. Div. Ord. Dept., Washington, D. C., 31 Dec. '17—13 Dec. '18, working on machine-gun design, ballistics and engr. features connected with production of machine guns, and fire control.
- DAY, K. H. (IV) Sgt., M. T. C. Tech Unit, American Field Service, France, 4 July '17; served with American Mission, Reserve Mallet, American Field Service, until 1 Oct.; Pvt., M. T. C., 1 Oct. '17; Sgt., 12 May '19. M. T. C., American Mission, Reserve Mallet, connected with French Army, 1 Oct. '17—19 June '19; only American Unit to take part in eight major operations. Somme Defensive; Aisne Defensive (Chemin des Dames, and Northeast of Rheims); Montdidier-Noyon Defensive; Champagne-Marne Defensive; Aisne-Marne Offensive; Somme Offensive; Oise-Aisne Offensive; Meuse-Argonne Offensive. (Page 86.)
- DEAN, C. M. (X) Pvt. 1 cl., Aviation Sect., Sig. C. Entered Service, 17 Dec. '17; placed on inactive list for industrial service. Disch., 19 July '18. See Civilian Record.
- DEAN, W. F. (II) Flying Cadet, A. S. A. Cadet, A. S., 2 Feb. '18. Camp Dick, Dallas, Tex., 1 June; Ground Sch., Princeton University, 27 June; Carruthers Field, Ft. Worth, Texas, 1 Oct.—30 Nov. '18.
- DE BELL, J. M. (X) 1st Lt., (T.), F. A. 2d Lt., F. A., 26 Oct. '17; 1st Lt., (T.), 4 July '18. Btry. A., 16th F. A., Ft. Leavenworth, Kan. A. E. F., 10 May '18—31 July '19; 16th F. A.; transferred Hq., 4th F. A. Brig., 30 Aug. '18; transferred Hq., 4th F. A. Brig., 12 Feb. '19; Arty. Information Service, and Counter-battery; Asst. Counter-battery Officer, 1st Corps, Meuse-Argonne Offensive. Aisne-Marne Offensive; Vesle Sector; Toulon Sector; St. Mihiel Offensive; Meuse-Argonne Offensive; Army of Occupation. (Pages 42, 45, 64, and 66.)
- DENNEN, W. L. (XII, III) 2d Lt., C. A. C. Pvt., Res. Off. Tr. Camp, 27 Sept. '17; 2d Lt., C. A. C., Nov. 2d Off. Tr. Sch., Ft. Monroe, Va., 27 Sept. '17; Coast Defense of Boston, company duty, Fts. Standish and Andrews, Asst. Coast Defense Ord. Officer, Ft. Warren, Dec. '17—Sept. '18; assigned to command 2d Unit, Sect. Repl. Draft. A. E. F., Sept. '18—Mch. '19; Heavy Arty. Tr. Bn., Angers, France; Btry. A., 53d Arty., C. A. C., 1 Dec. '18. (Page 41.)
- DICKSON, A. D. (I) Capt., C. A. C. 2d Lt., C. A. C., 9 Aug. '17; 1st Lt., ranking from 9 Aug.; Capt., 6 Feb. '18. Heavy Arty. Sch., Ft. Monroe, Va., 6 Sept. '17; Coast Defenses, Long Island Sound; Aerial Defense, Long Island Sound, and munition cities of Bridgeport and New Haven, July '18; C. O., 37th Regt., C. A. C., Sandy Hook, N. J., Sept. '18; Camp Eustis, Va., Oct.; Embarkation Camp, Newport News, Va., until armistice; Ft. Hancock, N. J., until Jan. '19.

REGISTER OF MILITARY RECORDS

- DICKSON, J. B. (V) Capt., C. W. S. Research Div., C. W. S., American University Experiment Station, Washington, D. C., 12 Sept. '18—30 Jan. '19. See Civilian Record.
- DIMLICH, H. C. (II) Pvt., Sig. C. Entered Service, Camp Upton, N. Y., 29 May '18; transferred to 13th Service Co., Sig. C., Camp Vail, N. J., a German-speaking unit, 22 July. A. E. F., 1 Sept. '18—19 May '19; 12th Service Co., Army Sig. Sch., Langres, France, doing Radio work; transferred to Co. C, 107th Field Service Bn., 32d Div., 1 Jan. '19; conducted post school, Div. Hq., Reugsdorf, Germany; A. E. F. University, Beaune, France, 6 Mch. '19.
- DODSON, F. W. (XIV) Ensign, U. S. N. R. F. Q. M. 3 cl., U. S. N. R. F., 9 July '18; Ensign, 1 Dec. '18. A. E. F. 1 Aug. '18—11 May '19; served on mine sweepers and auxiliaries, Atlantic Ocean, Gulf of Mexico, Mediterranean and Adriatic Seas.
- DOHERTY, G. D. (XV) 2d Lt., A. S. A. Entered Service, 6 Oct. '17; commissioned 30 Aug. '18.
- DOHERTY, J. E. (V) Pvt., C. W. S.
- DONNELLY, J. J. (III) 1st Lt., Inf. Pvt., Off. Tr. Camp, 14 May '17; 1st Lt., Inf., 14 Aug. '17. Off. Tr. Camp, Plattsburg, N. Y., 14 May '17; 302d Inf., Camp Devens, Mass., 29 Aug. A. E. F., 10 July '18—12 Feb. '19; transferred to 163d Inf., 41st Div., Nov. '18.
- DOON, J. W. (XV) 2d Lt., F. A. Pvt., Off. Tr. Camp, 14 May '17; 2d Lt., F. A., 15 Aug. '17. Off. Tr. Camp, Plattsburg, N. Y., 14 May '17; 303d F. A.; took course, Off. Tr. Camp, in France, to qualify for topographical officer; Camp de Souge. Meuse-Argonne Offensive.
- DOUGLAS, L. W. (III) 1st Lt., F. A. Aide to Brig. Gen. Foltz, Camp Lewis, Wash. A. E. F. Belgian Cross and Citation from G. H. Q.
- DOWELL, A. E. (VI) Ensign, U. S. N. R. F. Asst. Naval Constructor, Charleston, S. C.
- DRACH, E. W. (XIII) Pvt., C. A. C. U. S., June—Dec. '18, Enlisted Specialists, Electrical Class, C. A. C.
- DUDLEY, P. F. (VI) Lt. (j. g.), U. S. N. Sea. 2 cl., U. S. N. R. F., 10 Dec. '17; Ensign, 10 Feb. '18; Ensign, U. S. N., 5 June; Lt. (j. g.), 1 Jan. '19. Entered Service, 10 Dec. '17; Reserve Off. Sch., Annapolis, Md., 12 Feb. '18; transferred to U.S.S. Arizona, June; Asst. Engr. Officer, U.S.S. Arizona, July; joined overseas fleet, later formed part of escort on Pres. Wilson's first trip to France; Asst. Engr. Off., U.S.S. Mount Vernon, 1 Feb. '19. Disch., 1 July '19.
- DUMIT, M. J. (X) Pvt., C. W. S., Gas Defense, Div. U. S., 20 Sept. '17—14 Dec. '18; Development Laboratory Philadelphia, Pa.
- DUNHAM, A. P. (II) 2d Lt., Tank C. Pvt., 303d M. G. Bn., 3 Dec. '17; 2d Lt., Tank C., 25 Jan. '18. 303d M. G. Bn., 76th Div., Camp Devens, Mass., 3 Dec. '17; transferred to Off. Tr. Camp, Camp Devens, 5 Jan. '18. A. E. F., 8 Feb. '18, June '18; 1st Tank Center; U. S., 12 June—18 Dec. '18; sent to Gettysburg to instruct; Heavy Tank service, Camp Tobyhanna, Pa., Sch. for Instructors, Camp Polk, N. C. See Civilian Record.
- DUNNING, S. C. (XV) 1st Lt., F. A. Pvt., Off. Tr. Camp, Plattsburg, N. Y., 11 May '17; 2d Lt., F. A., 15 Aug.; 1st Lt., 3 Nov. '18. A. E. F., 29 Aug. '17—4 Aug. '19; French F. A. Sch., Fontainebleau; American F. A. Sch., Saumur; joined 17th F. A., Jan. '18; went to front near Verdun, Mch. '18; Inst., matériel of 75 mm. gun, Gondrecourt and La Courtine, May—Nov.; joined 15th F. A., 2d Div., after armistice. Verdun Sector; Toul Sector; Army of Occupation.
- DURYEA, G. R. (II) Lt., U. S. N. Lt. (j. g.), 1 Dec. '17; Lt., 1 July '18. Superintending Constructor, Buffalo, N. Y.
- EASTMAN, H. F. (VI) 2d Lt., Aviation Sect., Sig. R. C. Pvt. 1 cl., Aviation Sect., Sig. E. R. C., 28 Mch. '18; 2d Lt., A. S. A., 26 July '18; 2d Lt., Aviation Sect., Sig. R. C., 4 Mch. '19. School of Military Aeronautics, M. I. T., 28 Mch. '18; Langley Field, Va., special course on Airplane Instruments, 26 July '18; Asst. Engr. Off., on Instruments and Special Equipment, Ellington Field, Texas, 29 Aug. '18—6 Jan. '19.
- EATON, R. H. (II) Pvt., Engrs. Entered Service, 4 Apr. '18. A. E. F., France and Germany, 30 June '18—9 Mch. '19; 37 Engrs. Aisne-Marne Offensive (Château-Thierry); St. Mihiel Offensive; Meuse-Argonne Offensive; Army of Occupation. (Page 223.)
- EATON, W. W. (VI) Capt., C. A. C. Pvt., Off. Tr. Camp, Plattsburg, N. Y., 11 May '17; 2d Lt., C. A. C., 15 Aug.; 1st Lt., 17 Oct. '18; Capt., 9 Nov. '18. A. E. F., 25 Aug. '17—28 Nov. '18; 51st Arty., C. A. C. Seven months' service at front, including St. Mihiel Offensive. (Page 201.)
- EDDY, H. P., JR. (XI) Ensign, C. C., U. S. N. R. F. Entered Service, 4 Dec. '17. Asst. Naval Constructor, Norfolk, Va.
- ENRIGHT, E. F. (XIII) Lt., C. C., U. S. N. Asst. Constructor, Navy Yard, Philadelphia, Pa.
- ERB, R. C. (XV) Mr. Engr. (jr. gr.), Gas Defense Div., C. W. S. Entered Service, Aug. '18; stationed at Gas Defense Plant, Long Island City, N. Y., mfg. gas masks. See Civilian Record.
- EWAN, C. M. (II) Ensign, U. S. N. R. F. (A.). Bombing Sq., U. S. N. R. F. (A.); Great Lakes Naval Tr. Station, 10 Dec. '17; U. S. Naval Aviation Det., M. I. T., May '18; Bayshore, L. I., Aug.; Pensacola, Fla., Nov. '18.
- FALES, W. T. (VII) Hosp. Sgt., Sn. C. Pvt., Sn. C., 5 Feb. '18; Sgt. 1 cl., 1 Mch. '18; Hosp. Sgt., 20 July '19. Attached Social Hygiene Div., War Dept. Comm. on Tr. Camp Activities; conducted anti-venereal educational campaigns at Camp Sheridan, Ala., Ft. Omaha, Neb., and Camp Dodge, Iowa; stationed with Laboratory Div., Surgeon Gen. Off., Washington, D. C.
- FARNSWORTH, A. P. (XV) 2d Lt., A. S. A. Cadet, Aviation Sect., Sig. R. C., 11 Aug. '17; 2d Lt., R. M. A., 7 Mch. '18. U. S. Aviation Sch., Rich Field, Waco, Texas, 11 Aug. '17. A. E. F., 8 Sept. '18—26 May '19; C. O., 644th Aero Sq., 12 Mch. '19.

TECHNOLOGY'S WAR RECORD

- FARR, W. G. (II) Lt., U. S. N. (T.). Entered Service, 13 Nov. '17; Lt. (j. g.), C. C., U. S. N. (T.), 14 Jan. '18; Lt., 1 July '18. Naval Academy, Annapolis, 13 Nov. '17; New York Navy Yard, 13 Jan. '18—1 July '19; W. & A. Fletcher Co., Hoboken, and Tretzen & Lang Dry Dock Co., Hoboken, fitting out merchant vessels for transports, and repairs on many types of naval vessels. See Civilian Record.
- FAY, R. D. (VI) Chief Elec., U. S. N. R. F. Naval Experiment Station, Nahant, Mass., 15 Dec. '17—26 Nov. '18. Physically unfit for commission. See Civilian Record.
- FERRALL, J. P., JR. (VI) Capt., C. A. C. 2d Lt., C. A. C., 9 Aug. '17; 1st Lt., 28 Oct.; Capt., 4 July '18. C. A. Tr. Camp, Ft. Monroe, Va. A. E. F., 19 Dec. '17—30 Nov. '18; Heavy Art. Sch., France, 1 Jan. '18; Tractor Arty. Sch., Mch.; 55th Arty., C. A. C., 15 Apr.; Inst., Organization and Training Center, Tractor Arty., No. 3, Clermont-Ferrand, 1 May—13 July and 4 Aug.—9 Nov.; 51st Arty., C. A. C., 15 July—2 Aug. Enga ed in a defensive sector, but in no major engagements. Commanding 8th Field Sig. Bn., 4th Div., Ca no D-12, Iowa, Dec. '19.
- FESSENDEN, R. K., Capt., Army Service C. Pvt., Off. Tr. Sch., 5 May '17; 2d Lt., Inf., 15 Aug.; 1st Lt., 15 Dec.; Capt., Army Service C., 10 Nov. '18. Off. Tr. Camp, Plattsburg, N. Y., 5 May '17; 303d Inf., Camp Devens, Mass., Aug. A. E. F., 15 Mch. '18—1 Apr. '19; 303d Inf.; on staff of Commanding Gen., Renting, Requisitions and Claims Service, Advance Sect. S. O. S., in charge of all billeting work carried on in the Zone of the Armies.
- FINEMAN, IRVING (I) Lt., C. C., U. S. N. Lt. (j. g.), C. C., U. S. N., 13 Nov. '17; Lt., 1 July '18. Naval Academy, Annapolis, 13 Nov. '17; Asst. to Superintending Constructor for U. S. N., William Cramp & Sons Shipbuilding Co., Philadelphia, Pa.
- FLAGG, P. M. (II) 1st Lt., Inf. Pvt., 304th Engrs., 5 Oct. '17; 2d Lt., Inf., 1 June '18; 1st Lt., 28 Aug. '18. U. S., 5 Oct. '17—28 Feb. '19; Off. Tr. Sch., Camp Meade, Md.; 6th Tr. Bn., 156th Depot Brig., Camp Jackson, S. C., June '18.
- FLAHERTY, J. C. (IV) Storekeeper, U. S. N., Navy Yard, Charleston, Mass.
- FRENCH, H. N. (VI) Lt., U. S. N. Ensign, U. S. N. R. F., Sept. '17; Ensign, U. S. N.; Lt. Naval Academy, Annapolis, Sept. '17; Asst. Engr., U. S. S. Oklahoma, Feb. '18. A. E. F., July—Dec. '18; U. S. S. Wyoming, Scapa Flow, 4 July, serving in North Sea with Grand Fleet; Director of Radio Stations, Land and Ship, Queenstown, Ireland, Sept.; reported U. S. S. Wyoming, 10 Dec., escorted Pres. Wilson to Brest, returned to U. S. Left service, 15 Feb. '19.
- FULTON, GARLAND (XII) Lt. Comdr., C. C., U. S. N. Midshipman, U. S. N., 26 May '08; Ensign, '12; Lt. (j. g.), '15; Lt. '17; Lt. Comdr., '18. Bu. Cons. and Repair, Navy Dept., Washington, D. C.
- GAGER, C. C. (XIII) Lt. (j. g.), U. S. N. R. F. Ensign, U. S. N. R. F., 6 Apr. '17; Lt. (j. g.), 1 July '18. Attached Newport District, 6 Apr. '17; attached U. S. S. Utah, 1 Sept. Service abroad, 20 June '18—19 Feb. '19, attached to U. S. S. Florida. Transport service, 19 Feb.—8 Aug. '19, attached U. S. S. Antigone. Took part in surrender of the German Fleet, 21 Nov. '18.
- GANNETT, ROBERT (II) Ensign, U. S. N. R. F. (E.). M. M. 2 cl., Auxiliary Reserve, U. S. N. R. F., 10 May '18; C. M. I., 1 Aug.; Warrant Mach., 24 Aug.; Ensign, U. S. N. R. F., (Engr. Duties), 4 Dec. '18. Naval Auxiliary Reserve Steam Engr. Sch., Hoboken, N. J., May '18; shore duty after armistice until placed on inactive list, 20 Jan. '19. See Civilian Record.
- GARDNER, J. P. (IV) Capt., C. A. C. 2d Lt., C. A. C., 9 Aug. '17; 1st Lt., 9 Aug.; Capt., 5 Mch. '18. Off. Tr. Camp, Ft. Monroe, Va., 3 Sept.—26 Nov. '17. A. E. F., 11 Dec. '17—17 July '19; Heavy Art. Sch., Mailly-le-Camp, 15 Jan. '18; special duty, Heavy Art. Bd., designing trains for Railway Arty., 1-25 Apr.; in command, Btry. H, 53d Arty., C. A. C., at front in Champagne Sector, 25 Apr.—8 Nov.; stationed at Le Mans Embarkation Center after armistice. Champagne-Marne Defensive; Meuse-Argonne Offensive. *Croix de Guerre* with Palm. (Pages 148 and 175.)
- GARTNER, W. C. F. (I) Lt., (j. g.), U. S. N. R. F. (A.). Sea 2 cl., U. S. N. R. F., 6 Dec. '17; C. Q. M. (A.), 1 Jan. '18; Ensign, U. S. N. R. F. (A.), 19 Mch.; Lt. (j. g.), 1 Apr. '19. Naval Aviation Detachment, M. I. T., 6 Dec. '17; with Superintending Constructor of Aircraft, U. S. N., Curtiss Aeroplane and Motor Corp., Buffalo, N. Y.; Inspector of Cons. of seaplanes and flying boats, 23 Jan. '18; with Inspector of Engr. Material (Aeronautics), U. S. N., Aeromarine Plane and Motor Co., Keyport, N. J., 15 Apr. '18, and New York City, 14 Nov. '18—6 May '19; assisted in installation of power plants in NC boats, Rockaway Beach, L. I., N. Y.
- GAUS, G. H. (II, VI) 1st Lt., C. A. C. 2d Lt., C. A. C., 15 Nov. '17; 1st Lt., Mch. '18. Ft. Monroe, Va., 15 Nov. '17; Ft. Hancock, N. J., Mch., '18; Btry. F, 38th Arty., C. A. C., Camp Eustis, Va., Sept.; Port of Embarkation, Newport News, when armistice was signed. Resigned, 27 Jan. '19. See Civilian Record.
- GAY, R. N. (XV) 2d Lt., F. A. Pvt., Off. Tr. Sch., Camp Taylor, Ky., 5 Aug. '18; 2d Lt., F. A. Inst., 44 Tr. Btry., F. A. Cent. Off. Tr. Sch., Camp Taylor, Ky., from graduation until 30 Nov. '18. See Civilian Record.
- GAYHART, E. L. (XIII) Lt. Comdr., C. C., U. S. N. Entered U. S. N., 16 June '09; Lt. (j. g.), Apr. '17; Lt., 31 Aug.; Lt. Comdr., 21 Sept. '18. Ordered to office of Superintending Constructor of Aircraft, U. S. N., Curtiss Aeroplane and Motor Corp., Buffalo, N. Y., at entrance of U. S. into war, inspecting airplanes for Navy; took charge of branch office of Superintending Constructor of Aircraft, U. S. N., Canadian Aeroplanes, Ltd., Toronto, Canada, 5 June '18, until close of war; inspection of F-5 seaplanes under cons. for U. S. N.
- GIBBONS, T. M. (I) 2d Lt., C. W. S. Pvt., Inf., Sept. '17; transferred to Gas Defense Div., C. W. S., Oct.; Corp., Feb. '18; Sgt., 8 June; 2d Lt., 9 Oct. '18. 302d Inf., Camp Devens, Mass., Sept. '17; C. W. S., Oct.; Sn. C. and Gas Defense Service, C. W. S., Philadelphia, Pa., until disch., 20 Dec. '18.

REGISTER OF MILITARY RECORDS

- GIFFORD, R. L. (V) Lt. (j. g.), U. S. N. R. F. Chief Yeoman, U. S. N. R. F., 3 June '17; Ensign, 22 Feb. '18; Lt. (j. g.), 16 Sept. '18. Naval Aviation Detachment, Hingham, Mass., 3 June '17; Cadet Sch., First Naval Dist., 3 Oct.; Chief Radio Off., U. S. S. Kearsarge, 23 Feb. '18—7 Sept. '19.
- GILLESPIE, K. A. (X) 2d Lt., C. W. S. Pvt., C. W. S., 15 Sept. '18; 2d Lt., 15 Oct. '18. Chlorine Products Sect., C. W. S., and investigation in connection with gas shell, Edgewood Arsenal, Md. See Civilian Record.
- GILMOUR, A. E. (II) Pvt., 1 cl., F. A. Entered Service, 5 Jan. '18. A. E. F., 2 May '18—28 Apr. '19; Electrical Engr., Hq. Co., 304th F. A., 77th Div. Baccarat Sector; Vesle-Aisne Sector; Meuse-Argonne Offensive.
- GOKEY, N. W. (XIII) Lt. (j. g.), C. C., U. S. N. (T.). Ensign, U. S. N. R. F., 14 Apr. '17; Lt. (j. g.), 1 Apr. '18; Lt. (j. g.), C. C., U. S. N. (T.), 1 Dec. '18. Asst. Naval Constructor, Hull Div., Charlestown Navy Yard, Mass., 14 Apr. '17 to date (Oct. '19); engaged in: (1), conversion of ex-German liners, Mt. Vernon, America, and Covington into transports; (2), conversion of Bunker Hill into mine layer Aroostook; (3), repairing of Mt. Vernon in dry dock after torpedoing; (4), repairing and fitting out of submarines; (5), new cons. work in connection with building Fuel Oil Ships Nos. 16, 17, and 18.
- GOLDSMITH, H. F. (X) Ensign, U. S. N. R. F. (A.). Sea. 2 cl., U. S. N. R. Flying Corps, 3 Apr. '18; C. O. M. (A.), 10 Apr.; Ensign, 10 Sept. '18. Entered Service, 3 Apr. '18. Released from active duty, 8 Mch. '19. See Civilian Record.
- GOODALE, FRANCIS (XI) Ensign, U. S. N. R. F. M. M. 2 cl., U. S. N. R. F., 3 July '18; Mach., 16 Oct.; Ensign, 20 Feb. '19. Naval Auxiliary Reserve Steam Engr. Sch., Hoboken, N. J., July '18; U. S. S. Eastern Queen, Oct. '18; Engr. Officer, U. S. S. Merauke, Feb. '19; visited Denmark, Holland, London, Paris, Brest, and Hamburg, 20 Nov. '18—14 Jan. '19. Inactive duty, 11 July '19. See Civilian Record.
- GORRELL, E. S. (XIII) Col., A. S. Entered Service, 2 Mch. '08; Capt., A. S., until 14 May '17; Maj., 15 May '17; Lt.-Col., Oct.; Col., 28 Oct. '18. On duty in office of Chief Sig. Officer, 6 Apr. '17, A. E. F., 17 June '17—30 July '19; Member, Aeronautical Comm. sent to Europe to choose aircraft material for fabrication in U. S., and to arrange aircraft industrial program, 17 June; Chief Technical Sect., A. S., 15 Aug.; in command of Strategic Aircraft, 20 Nov.; duty with G—3, Operation Sect., General Staff, 5 Feb. '18; A. S. Representative at G. H. Q., 1 Sept.; Asst. Chief of Staff, A. S., 4 Dec.; Chief of Staff, A. S., 1—30 July '19. Served on Belgian, British, French, Italian and American fronts. Distinguished Service Medal; Distinguished Service Order (British); Chevalier of the Legion of Honor. (Pages 137 and 208.)
- GOUDEY, R. F. (XI) 2d Lt., Sn. C. Med. Off. Tr. Group, Camp Greenleaf, Ga., 25 Oct. '18; Detachment, Sn. C., Camp Beauregard, La., 11 Nov. '18—14 Mch. '19. See Civilian Record.
- GRAMSTORFF, E. A. (IV) Lt., C. C., U. S. N. Lt. (j. g.), C. C., U. S. N., 1 Dec. '17; Lt., 1 July '18. Naval Academy, Annapolis, Md., 1 Dec. '17; Asst. Docking Officer and Asst. to Outside Supt., Hull Div., Charlestown Navy Yard, 9 Jan. '18; Inst., second course in naval architecture, M. J. T., June; Outside Supt. Office, Charlestown Navy Yard, Ship Supt. on repairs to capital ships, Sept.; Ship Supt. on new cons., in charge of fitting out new fuel oil ships, May '19 to date (Sept. '19).
- GRANGER, H. I. (VI) Pvt., S. A. T. C. Pvt., Engr. R. C., 6 Aug. '18; transferred S. A. T. C., M. I. T., 10 Oct. Disch., 17 Dec. '18.
- GRAY, W. A., JR. (III) 1st Lt., Inf. 2d Lt., Inf. R. C., 8 May '17; 2d Lt., Inf., U. S. A., 25 Oct.; 1st Lt., 25 Oct. '17. A. E. F., 15 Apr. '18—22 July '19; 6th Inf., 5th Div. Anoult Sector; St. Die Sector; St. Mihiel Offensive; Meuse-Argonne Offensive; Army of Occupation, Trier, Germany. Wounded by H. E., 9 Nov. '18. Divisional Citation. (Pages 156 and 200.)
- GROVES, L. R., JR. (I) 2d Lt., Engr. Cadet, Military Academy, West Point, N. Y., 15 June '16; graduated, 2d Lt., Corps of Engrs., 1 Nov. '18. Since armistice, Engr. Sch., Camp Humphreys, Va., except a two-months' inspection trip to France, summer '19.
- GUSTIN, E. E. (II) Corp., Q. M. C. A. E. F., Co. E, 307th Sup. Tr.
- HAGGARD, R. S., Pvt., Ord. Corps. Ord. Supply Sch., Camp Hancock, Ga., 4 May '18; Technical Asst., in connection with the direct synthetic ammonia process as developed by the General Chemical Co., U. S. Nitrate Plant No. 1, Sheffield, Ala., June '18—29 Jan. '19. Sec. Y. M. C. A., sent to Russia to work in the prison camps in Siberia, the work taking him across Russia and Siberia to Vladivostok, and return by way of Harbin, China, being stationed seven months in Chita, the capital of the Transbaikalia District, Siberia, '15—'16.
- HAMILTON, H. W. (VII) Capt., Sn. C. 1st Lt., Sn. C., U. S. A., 10 Nov. '17; Capt., 3 May '19. Army Med. Sch., 10 Nov. '17; transferred to U. S. Army Laboratory No. 1, 15 Dec. '17. A. E. F., 24 Jan. '18—6 Aug. '19; U. S. A. Laboratory No. 1, Neufchateau, Vosges, fifteen months; zone of activity, the entire American Advance Sect.; transferred to G—5, Education Div., Paris, May '19. (Page 219.)
- HANNAH, T. E. (I) Capt., C. A. C. 2d Lt., C. A. C., 5 Sept. '17; 1st Lt., 30 Oct.; Capt., 5 Feb. '18. 3d Tr. Camp, Ft. Monroe, Va., 5 Sept. '17. A. E. F., 5 Dec. '17—5 Nov. '18; Heavy Arty. Sch., Maily-sur-Marne, Jan. '18; 1st Bn., Prov. Howitzer Regt., Apr.; Army Sch. of the Line, Langres, 7 Oct.; ordered to U. S. to officer a new regt., 22 Oct. '18. U. S. Nov. '18—5 Mch. '19; Ft. Monroe, Va., Mulberry Island, Ft. Wright, New London, Conn.; ordered to Honolulu, but disch. at San Francisco, Calif. Alsatian Front, 20 Apr.—15 Aug. '18; Toul Sector; St. Mihiel Offensive.
- HANSON, E. R. (VI) Ensign, U. S. N. R. F. (E.). C. M. M., U. S. N. R. F., 5 Aug. '18; Mach., 21 Nov.; Ensign U. S. N. R. F. (E.), 13 Feb. '19. U. S. N. Steam Engr. Sch., Hoboken, N. J., 5 Aug. '18; U. S. S. Westchester, until 17 Feb. '19.

TECHNOLOGY'S WAR RECORD

- HARDWICK, RICHARD** (VII) 2d Lt., C. A. C. Pvt. 1 cl., F. A., 21 Sept. '17; Mr. Gunner, C. A. Tr. Sch., July '18; 2d Lt., C. A. O. R. C., Dec. '18. 201st F. A., Camp Devens, Mass., 21 Sept. '17; C. A. Tr. Sch., Ft. Monroe, Va., Mch.—Dec. '18.
- HARLOW, F. C. (I)** 1st Lt., C. A. C. Pvt., C. A. Off. Tr. Sch., 1 Dec. '17; 2d Lt., C. A. C., 27 Mch. '18; 1st Lt., 21 June '18. C. A. Off. Tr. Sch., Ft. Monroe, Va., 1 Dec. '17; Ft. Strong, Boston Harbor, Apr. '18; Hq. Co., 47th C. A. Regt., Camp Eustis, Va., July; detached service, Ft. Monroe Motor Transport Sch., Sept. A. E. F., 26 Oct. '18—6 Apr. '19; 47th C. A. Regt., Angouleme, France; Baggage Service, Bordeaux, Nov. '18—Apr. '19. Adj., Ft. Warren, Mass., Apr.—18 June '19.
- HARPER, C. B. (XIII)** Lt. (j. g.), C. C., U. S. N. R. F. Sea. 2 cl., U. S. N. R. F., 3 Jan. '18; C. M. 2 cl.; C. Q. M., 1 Feb.; Ensign, C. C., 3 July '18; Lt. (j. g.), 15 Apr. '19. Entered Service, 3 Jan. '18; Chief of Scientific Sect., Aircraft Div., Bu. of Cons. and Repair, Washington, D. C., to date (Aug. '19).
- HARPER, JOHN** (VI) 1st Lt., Engrs. Pvt., Off. Tr. Camp, 12 May '17; 1st Sgt., Engrs., 1 Sept.; 2d Lt., 15 Jan. '18; 1st Lt., 15 June '18. 1st Tr. Camp, Plattsburg, N. Y., 12 May '17; 301st Engrs., Camp Devens, Mass., 1 Sept. '17. A. E. F., 14 June '18—6 July '19; 3d Corps Sch., Clamecy, France; 301st Regt., Corps Engrs., 4th Corps, at front for a month. Cambridge University, England, Mch. '19. Toul Sector; Army of Occupation.
- HARRINGTON, WALTER** (XI) 1st Lt., C. W. S. A. E. F.; 1st Gas Regt.
- *HASLAM, R. H. (II)** See Roll of Honor (page 105).
- HAVILAND, T. Z. (II)** 2d Lt., Ord. Corps. Pvt., Ord. Corps, 12 Dec. '17; 2d Lt., 31 Aug. '18. Entered Service, 12 Dec. '17; Ft. Slocum, Aberdeen, 22 Dec.; Sandy Hook, 20 Mch. '18; Aberdeen Proving Grounds, Md., 17 June '18. Disch., 4 June '19.
- HAWES, C. W. (XV)** Pvt., Engrs. Entered Service, 12 Dec. '17; 23d Engrs., Camp Meade, Md. A. E. F., 13 Apr. '18—16 June '19; stationed near Bordeaux in S. O. S., for six months; Hq. Enlisted Staff, Inst. in Business Organization, College of Business, A. E. F. University, Beaune, 19 Mch. '19. Meuse-Argonne Offensive.
- HEATH, C. J. (II)** Pvt. 1 cl., Ord. Corps. Ord. Supply Sch., 2 May '18; Ord. Machine Gun Sch., June; Ord. Motor Instruction Sch., Oct. '18; 8th Army Corps Mobile Ord. Repair Shop; served at Raritan Arsenal, N. J., General Ord. Supply Depot for the A. E. F., six months. Disch., 15 Mch. '19.
- HEATH, E. H., JR. (VI)** 2d Lt., Sn. C. Pvt., M. D., 13 Dec. '17; Corp., 1 Sept. '18; Sgt., 19 Sept.; 2d Lt., Sn. C., 30 Oct. '18. Laboratory diagnostic work; Med. Detachment, Base Hospital, Camp Devens, Mass., 13 Dec. '17—'18. Yale Army Laboratory Sch., 30 Oct. '18; Camp Devens, Mass., 13 Dec. '18—10 May '19.
- HEGENBERGER, A. F. (I)** 2d Lt., A. S. Cadet, Aviation Sect., Sig. C., 8 Sept. '17; 2d Lt., R. M. A., A. S. 6 Apr. '18. School of Military Aeronautics, M. I. T., 20 Oct. '17; trained in flying and instructed in flying, Ellington Field, Texas, 22 Dec.—6 Apr. '18; Camp Dick, Texas, 30 Apr. '18; Sch. of Aerial Observers, Ft. Sill, Okla., 8 May; Sch. of Aerial Gunnery, Taliaferro Field, Ft. Worth, 15 June Second Prov. Wing 15 July; Sch. of Aeronautical Engr., M. I. T., 1 Oct.; Aeronautical Engr., Engr. Div., A. S., McCook Field Dayton, Ohio, 11 Feb. '19 to date (Nov. '19).
- HENDERSON, G. W. (I)** Lt. (j. g.), C. C., U. S. N. Entered Service, 1 Dec. '18; Naval Academy, Annapolis, Md., 23 Dec.; transferred to Philadelphia Navy Yard, 33 Jan. '19. See Civilian Record.
- HIBBARD, L. C. (VI)** 1st Lt., F. A. Driver, American Field Service, Sect. 1, with French Army, Dec. '16; Chief, Sect. 67, June—Sept. '17. 2d Lt., F. A., 4 Oct. '17; 1st Lt., 15 Aug. '18. A. E. F., 4 Oct. '17—June '18; 6th F. A.; C. S., June—Dec. '18. Verdun; Chemin des Dames; Craonne; Cantigny. Croix de Guerre. (Page 148.)
- HILL, L. T. (XV)** Capt., C. A. C. Pvt., Off. Tr. Camp, 14 May '17; 2d Lt., C. A. C., 15 Aug.; 1st Lt., 29 Oct.; Capt., Sept. '18. 1st Off. Tr. Camp, Plattsburg, N. Y., 12 May '17. A. E. F., 29 Aug. '17—5 Nov. '18; Btry. D, 2d Trench Mortar Bn., C. A. C.; Army Trench Mortar Sch. Flanders with British Army; Verdun and the Woivre with French Army; Alsace with U. S. Troops.
- HILLS, L. H. (XIV)** Pvt., Sig. C. 42d Service Co., Sig. C., 19 Sept. '18; transferred to Co. O, 3d Bn., Edgewood Arsenal, Md., 25 Nov. '18. See Civilian Record.
- HODGSON, M. L. (XV)** Ensign, U. S. N. R. F., 26 Aug. '18.
- HOLDEN, D. F. (XV)** 1st Lt., C. W. S. Entered Service, Aug. '17; 1st Lt., Gas Defense Sect., C. W. S., 27 Sept. '17. Stationed at Gas Defense Plant, Philadelphia, Pa., Inspecting, Supervising Govt. Stores, Accounting, Aug. '17—Feb. '19.
- HOLT, C. G. (VI)** 2d Lt., Aviation Sect., Sig. R. C. Enlisted, 29 Jan. '18; Flying Cadet, Aviation Sect., Sig. C., 23 May; 2d Lt., Aviation Sect., Sig. R. C., 29 May '19. U. S., 23 May '18—31 May '19.
- HOLTON, J. H. (X)** 1st Lt., C. W. S. 1st Lt., Research Div., C. W. S., 14 Sept. '18; C. O., National Carbon Co. Detachment, Cleveland, Ohio, until Feb. '19. See Civilian Record.
- HOPKINS, H. D. (VI)** Elec. 1 cl., U. S. N. R. F. Elec. 2d cl., U. S. N. R. F., 10 July '17; Elec. 1 cl., 1 Apr. '18. U. S., 10 July '17—10 July '18; U. S. S. Jupiter, 10 July '18—31 Jan. '19.
- HOUGHTON, S. P. (XV)** Capt., Ord. Corps. 1st Lt., O. R. C., 4 June '17; active service, Ord. Dept., 13 Aug.; Capt., Ord. Corps. (N. A.), 30 June '18. In charge of Proof House, testing small arms ammunition, Frankford Arsenal, Philadelphia, Pa., 13 Aug. '17—31 Dec. '18.
- HOWARD, F. C. (X)** Capt., Aviation Sect., Sig. C. Entered Service, C. A. C., Ft. Monroe, Va.; 1st Lt.; Capt., Aviation Sect., Sig. C. A. E. F., 96th Aero Sq.

REGISTER OF MILITARY RECORDS

- HOYT, F. A., JR., Sgt., Engrs. Entered Service, 25 July '17; Sgt., Co. A, 101st Engrs., 26th Div. A. E. F., 8 Oct. '17—4 Apr. '19. Chemin des Dames; Seicheprey; Aisne-Marne Offensive (Château-Thierry); St. Mihiel Offensive; Meuse-Argonne Offensive.
- HULBURD, P. E. (IV) Capt., C. A. C. 2d Lt., C. A. C., 2 Sept. '17; 1st Lt., 16 Oct.; Capt., 7 Mch. '18. Ft. Monroe, Va., Ft. Adams, R. I. A. E. F., 18 July—24 Nov. '18; 66th Arty., C. A. C.; Organization and Tr. Center, Tr. Area No. 2, Limoges, France.
- HUNT, G. A. (I) Capt., C. A. C. 2d Lt., Prov., C. A. C., 11 Nov. '17; 1st Lt., 25 May '18; Capt., 25 Sept. '18. 3d Off. Tr. Camp, Ft. Monroe, Va., 11 Nov. '17; assigned 11th Co., Coast Defenses of Chesapeake Bay, 15 Apr. '18; transferred 45th Regt. C. A. C., 4 July; detached service, Off. Sch., Ft. Monroe, Va., taking course in Orientation and Gunnery. A. E. F., 4 Nov. '18—7 June '19; detached service, S. O. S., St. Aignan, and later Blois, in command of a casual company; Mess Off., Forwarding Camp, Le Maas, Feb.—May '19. Resigned, 25 July '19.
- HUNT, P. L. (XV) Regt. Supply Sgt., F. A. Enlisted, 18 Apr. '17; mustered into service, 5 Aug. '17. A. E. F., 22 Sept. '17—28 Apr. '19; Regt. Supply Sgt., 102d Regt., F. A., 26th Div. Chemin des Dames; Toul Sector (Seicheprey, Xivray, Apremont); Aisne-Marne Offensive (Château-Thierry); St. Mihiel Offensive; Meuse-Argonne Offensive (Verdan Salient). Transferred to various base hospitals for treatment after armistice.
- HUNTER, W. B. (X) 2d Lt., Inf. Pvt. 1 cl., Inf., 5 Jan. '18; Sgt., 1 June; 2d Lt., 13 July '18. 3d Off. Tr. Sch. Camp Upton, N. Y., 5 Jan. '18. A. E. F., France and Germany, 6 Apr. '18—15 Apr. '19; 306th Inf.; 311th, Inf.; 167th Inf., 42d Div., July; Hospital 44, Puges-les-Eaux, with influenza, 4 Oct.; rejoined 167th, 15 Nov. '18. Baccarat Sector; St. Mihiel Offensive; Army of Occupation, Sinzig-am-Rhein, 13 Dec.—6 Apr. '19.
- HUTCHINSON, E. H. (IV) Lt. (j. g.), U. S. N. R. F. Coxswain, U. S. N. R. F., 17 July '17; C. B. M., 11 Oct.; Ensign, 11 Feb. '18; Lt., (j. g.), 21 Sept. '19. Naval Tr. Station, Bamkin Island, 17 July '17; Ensign Sch., Harvard, Oct.; Turret Off. in No. 3 turret, U.S.S. Michigan, Feb. '18; Asst. Engr., destroyer Schley, June. A. E. F., June '18—June '19; with Patrol Sq. in Mediterranean Sea; based at Gibraltar until after armistice, then at Pola, Austria; Chief Engr. of Schley, Feb. '19. On first American destroyer ever to go through the Dardanelles to Constantinople.
- HYDE, S. W. (VII) Sgt., M. D. Pvt., Mass. N. G., 26 June '16; Sgt., M. D., 11 July '17. Mobilization Camps, 25 July—30 Sept. '17. A. E. F., 3 Oct. '17—17 July '19; Field Hospital 102, 26th Div.; Field Laboratory, 26th Div., 20 Jan. '18—7 Mch. '19; Edinburgh University, Scotland, 7 Mch.—2 July '19. Chemin des Dames; Toul Sector; Champagne-Marne Defensive; Aisne-Marne Offensive; St. Mihiel Offensive; Meuse-Argonne Offensive.
- IGLEHEART, G. P. (II) Lt. (j. g.), U. S. N. R. F. (A.). M. M., U. S. N. R. F., 4 Apr. '17. Ensign (A.), 4 Feb. '18; Lt. (j. g.), 1 Oct. '18. Served on converted yacht Malay, based on Provincetown, doing outer patrol work, 4 Apr. '17; transferred to aviation ground school, M. I. T., Aug.; given instruction in airplane cons; sent to Curtiss plant, Buffalo, N. Y., for further instruction, Dec.; Asst. in charge of engr. to Superintending Constructor of Aircraft, Curtiss Aeroplane Co., Buffalo, Feb. '18—21 Apr. '19.
- JOHNSON, A. K. (VII) Pvt. 1 cl., M. D. Pvt., Base Hospital Lab., Camp Devens, Mass., Mch. '18; Pvt. 1 cl., Nov. '18. Transferred as Inst. in Chemistry, S. A. T. C., Lowell Textile School, Lowell, Mass., 14 Nov. '18—Feb. '19.
- JOHNSON, W. F. (I) 1st Lt., Inf. 2d Lt., Inf., 11 Sept. '17; 1st Lt., 11 Sept. '17. 302d Inf., Camp Devens, Mass., 11 Sept. '17; 13th Inf., Camp Fremont, Calif., Nov.; Camp Mills, L. I., N. Y., Oct. '18; Hoboken, N. J., Dec.—Aug. '19. On duty with 2d Philippine Inf. (Prov.), Philippine Islands, 14 Oct. '19.
- JOHNSON, W. T., JR. (VII) 1st Lt., Sn. C. Camp Greenleaf, Ga., Aug. '18; detached duty, drying vegetables at Canton, Pa., Nov. '18.
- JOHNSTON, A. B. (III) 1st Lt., Ord. Cops. 2d Lt., Ord. R. C., 20 Dec. '17; 1st Lt., Ord. Corps, 7 Sept. '18. Proof Officer, Proving Ground, Aberdeen, Md., proof firing and general testing of all sizes and kinds of guns and ammunition, 20 Dec. '17—5 Mch. '19.
- *JONES, C. E. (X). See Roll of Honor (page 99).
- JOSLIN, E. L. (I) Pvt., Engrs. Entered Service, 15 Dec. '17; 23d Engrs., Ft. Slocum, N. Y.; Camp Laurel and Camp Glenburnie, Md. Disch., 18 Feb. '18, on account of broken wrist improperly set.
- KEENE, H. N. (XV) Mr. Engr. (sr. gr.), C. W. S. Pvt. 1 cl., Gas Defense Service, 26 Sept. '17; Corp., Oct.; Sgt., Feb. '18; Mr. Engr. (sr. gr.), C. W. S., Nov.; examined, and passed Commissioning Bd., Oct. '18. Allentown, Pa., Sept. '17. A. E. F., 14 Nov. '17—Apr. '19; Overseas Repair Sect. 1, Gas Defense Service; in charge Requirement Sect., C. W. S.
- KEESLER, E. Y. (VI) Capt., C. A. C. 2d Lt., C. A. C., 1 Sept. '17; 1st Lt., Oct.; Capt., July '18. A. E. F., Dec. '17—July '19; Casual Officer; Inst., Heavy Arty. Tr. Center, France; Observer, 15th Corps Heavy Arty., 2d British Army, Flanders Front, July '18; in command of one sect., first convoy of caterpillars to be run overland for long distance, Nov.; in command automobile transportation for G. H. Q., Jan.—June '19; piloted parties of King and Queen of Belgium, and of Marshall Haig on their visits to Chaumont. Order of Leopold, Belgian.
- KELLY, J. R. (VI) 1st Lt., Engrs. Pvt. Off. Tr. Camp, 12 May '17; 2d Lt., Inf. O. R. C., 15 Aug.; 1st Lt., Sig. Co., 28 Sept. '17; 1st Lt., Engrs., 15 Nov. '17. 2d Co., 1st Off. Tr. Camp, Plattsburg, N. Y., 12 May '17; connected with development and mfr. of sound ranging apparatus, Palmer Laboratory, Princeton, N. J., 30 Oct. '17—14 Aug. '18. A. E. F., 14 Aug. '18—22 Mch. '19; Sound and Flash ranging. Le Cateau, Somme Offensive, Oct. '18. (Page 277.)

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- KENNEDY, G. S. (II) Capt., C. A. C. Coast Defense of Alabama, Ft. Morgan, Mobile, Ala.
- KILLORIN, F. O. (I) Lt. (j. g.), C. C., U. S. N. R. F. Hull Div., Navy Yard, Brooklyn, N. Y.
- KINGMAN, A. F. (VI) Capt., Inf. 2d Inf., 30 Nov. '16; 1st Lt., 24 May '17; Capt., 9 Feb. '18. A. E. F., June '17 to date (Oct. '19); 16th Regt., Inf. Toul Sector; Cantigny; Army of Occupation. Wounded in Toul Sector.
- KITTREDGE, G. D. (I) Capt., C. A. C. Prov. 2d Lt., C. A. C., 9 Aug. '17; 1st Lt., 9 Aug. '17. A. E. F., Dec. '17—June '18; Heavy Arty. Sch., Mailly; 55th Arty., C. A. C. Feb. '18; 44th Arty., general arty. action in Luneville Sector, Apr.—May '18. U. S. June '18—21 Jan. '19; Inst., attached for special duty, 67th Arty., C. A. C., Ft. Scott, Calif., June; Adj., 1st Bn., 40th Arty., Aug.—Nov.; arrived in New York, 11 Nov., on way to France; Camp Grant, Ill., 3 Dec.—14 Jan. '19.
- KNAPP, H. A. (X) Pvt. 1 cl., C. W. S. Pvt., Gas Defense Service, 30 Mch. '18; Pvt. 1 cl., 18 May '18. Gas Defense Plant, Long Island City, N. Y., 30 Mch. '18—6 Feb. '19.
- KNIGHT, A. R. (X) 2d Lt., A. S. A. Cadet, A. S., 23 July '17; 2d Lt., A. S. A., 16 Jan. '18. School of Military Aeronautics, M. I. T., 23 July '17. A. E. F., 14 Sept. '17—20 Nov. '18; training in flying; and active duty with French A. S., attached to G. B. 7, Escadrilles 117 and 121, and G. B. 2, Escadrilles 115 and 150; served on Italian front, Jan.—Mch. '18, making several long-distance day bombardment raids across the Adriatic Sea into Austria; transferred to Château-Thierry Sector, 28 Mch.; long-distance night bombardment work, Champagne Sector, near Chalons, 20 May; took part continually in long-distance night raids on Cologne, Essen, Mayence, and Strasbourg; Plave; Château-Thierry Sector, Mch. '18; Champagne Sector; Meuse-Argonne Offensive. Croix de Guerre with two citations; Caproni Medal (Italian), French military brevet. U. S., 20 Nov. '18—3 Feb. '19; Inst., night flying, Houston, Texas. (P. ges 148 and 206.)
- KNOX, C. V. S. (I) Lt. (j. g.), U. S. N. R. F. (5). Sea. 2cl., U. S. N. R. F. (5), 10 Dec. '17; C. Q. M., Dec. '17; Ensign, Mch. '18; Lt. (j. g.), June '19. M. I. T., 10 Dec. '17; balloon inspection and production, Curtiss Aeroplane Co., Buffalo, N. Y., 26 Jan. '18; Goodyear Tire and Rubber Co., Akron, Ohio, 26 Mch. to date (Aug. '19).
- KRIGGER, ANSELMO (I) Pvt., Engrs. Depot Brig., Camp Devens, Mass., acted as 1st Sgt., and later Bn. Sgt. Maj.; Co A, 552 Engr Service Bn., Camp Humphreys, Va., until 20 Dec. '18.
- KRUG, F. S., JR. (VI) Capt., C. A. C. 2d Lt., C. A. C., 9 Aug. '17; 1st Lt., 16 Oct.; Capt., 5 Feb. '18. C. A. C. Tr. Sch., Ft. Monroe, Va., 9 Aug. '17; Ft. Caswell, N. C. A. E. F., 27 Oct. '18—20 June '19; Supply Officer, 6th Trench Mortar Bn.; Asst. Camp Inspector, Camp Pontanzen, Brest, 26 Dec. '18.
- KUHN, S. L. (I) Capt., Engrs. 2d Lt. (Prov.), Engrs., 16 Oct. '17; 1st Lt., Feb. '18; Capt., May '18. Prov. Off. Tr. Camp, Ft. Leavenworth, Kan., 8 Nov. '17; 4th Engrs., Camp Greene, N. C., 5 Jan. '18. A. E. F., Apr. '18—Oct. '19; Bn. Adj., 2d Bn., 4th Engrs.; Topographical and Intelligence Officer, acting as Field Adj., 6th Engrs., 1 Aug. '18; Topographical and Intelligence Officer, Provost Marshal, Officer in Charge of Civil Affairs, Athletic and Entertainment Officer, 6th Engrs., in Germany; on staff of Section Engr., Intermediate Sect. and Paris Dist., settling bills and closing contracts, etc., from Marseille to LeHavre, June '19; in office of Chief Engr., A. E. F., Paris, Aug. '19. Marine Sector; Champagne-Marne Defensive; St. Mihiel Offensive; Meuse-Argonne Offensive; Army of Occupation. Cited by 5th French Army Corps; Croix de Guerre with Gold Star. (Page 149.)
- KUHNS, AUSTIN (X) 1st Lt., Engrs., Pvt. Ord. R. C., 26 June '17; 1st Lt., Engrs., 16 Aug. '17. Machine Gun Sch., San Antonio Arsenal, Texas. A. E. F., 6 July '18—18 July '19; Co. C, 29th Engrs.; Sound Ranging Sect. No. 1; 1st Army, 16 Aug.—11 Nov. '18; College of Technology, Manchester, Engr., spring '19. St. Mihiel Offensive; St. Mihiel Sector until 11 Nov. '18.
- LANE, K. M. (XI) Candidate, Engrs. 1st Off. Tr. Camp, Plattsburg, N. Y., 14 May '17; transferred from Inf. to Engr. C., 16 June, sent to Washington, then to Belvoir, Va. Passed examinations for commission but failed to pass physical examination. Disch., 14 Aug. '17. See Civilian Record.
- LANE, S. M. (X) Ensign, C. C., U. S. N. R. F. Yeoman, 2cl., U. S. N. R. F., 6 June '17; Ensign, C. C., 26 Sept.; Asst. Naval Constructor, Apr. '18. Asst. Material Officer, Charlestown Navy Yard, Mass., 6 June '17; Asst. Outside Supt., in charge of outfitting repairs on destroyers, etc., 21 Dec. '17—31 Dec. '18.
- LEBBY, T. D., JR. (II) Ensign, U. S. N. R. F. Navy Yard, Charleston, S. C.
- LEE, M. C., (formerly Liebensberger), (IV) Capt., Adj.-Gen. Dept. Pvt., F. A., 6 Sept. '17; Sgt.; 2d Lt., Adj.-Gen. Dept., 14 May '18; Capt. Btry. D, 311th F. A., Camp Meade, Md., 6 Sept. '17; 3d Off. Tr. Sch., Camp Meade, 5 Jan. '18; Graduated, Personnel Sch., Washington, D. C., 14 May '18; Personnel Adj., Hq. 311th F. A., 15 May; graduated 1st Trade Test Sch., Newark, N. J., 6 June; Asst. Port Personnel Adj., Port of Embarkation, Newport News, Va., 7 July; on confidential orders and Personnel Adj., U. S. Army Transport, Martha Washington, to Bordeaux, France and return, 8 Feb. '19; Asst. Personnel Adj., 8 Mch.—1 Sept. '19.
- LEE, S. M. (II) M. M. 1 cl., U. S. N. R. F. Entered Service, 7 July '17; U. S. submarine chaser 331, special anti-submarine force, on duty between Halifax N. S., and Norfolk, Va.
- LEONARD, P. C. (XV) Sgt., A. S. Pvt. 1 cl., 2 Oct. '17; Sgt., Jan. '18. U. S. 2 Oct. '17—12 Jan. '19; stationed at School of Military Aeronautics, M. I. T., entire time; Asst. to president of Academic Bd., later Recorder of the Schools. (P. es 4, 45, 62 and 64.)
- LEWIS, B. I. (XIII) Lt. (j. g.), C. C., U. S. N. R. F. Ensign, U. S. N. R. F., 14 Apr. '17; Lt. (j. g.), C. C., U. S. N. R. F., 1 Apr. '18. Hull Div., Navy Yard, Charleston, Mass., 14 Apr. '17; transferred to Seattle, Wash., 22 Aug. '18; Superintending Constructor for U. S. N., Todd Dry Dock and Construction Corp., Tacoma, Wash., 9 Jan. '19.

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- LEWIS, E. C., (II) Ensign, U. S. N. R. F. M. M. 1 cl., U. S. N. R. F., 20 Mch. '18; C. M. M., 25 Nov.; Ensign, 27 Jan. '19. Design Dept., anti-submarine devices, U. S. N. Experimental Station, New London, Conn., 25 Mch. '18—18 Feb. '19.
- LEWIS, S. O. (VI) Capt., Q. M. C. Pvt., Off. Tr. Camp, 12 May '17; 2d Lt., Q. M. C., 15 Aug.; 1st Lt., 12 Feb. '18; Capt., 2 Oct. '18. In charge Fuel and Storage Dept., Camp Logan, 15 Aug. '17. A. E. F., 28 Oct. '18—28 June '19; Supply Officer, Evacuation Hospital No. 22; stationed at Fromersville, France, and Coblenz, Germany.
- LITTLE, H. G. (VII) Sec. 2 cl., U. S. N. R. F. Hosp. App. 1 cl., reported at Naval Hospital, Chelsea, Mass.
- LITTLEFIELD, W. J. (XV) Capt., F. A. Pvt., Off. Tr. Camp, 12 May '17; 2d Lt., Ord. Corps, 15 Aug.; 1st Lt., 8 Jan. '18; 1st Lt., F. A., 23 Sept.; Capt., F. A. O. R. C., 1 Mch. '19. Btry. 3, 1st Off. Tr. Camp, Plattsburg, N. Y., 12 May '17; in charge Supply Office, Engr. Div., Ord. Dept., Washington, D. C.; Personnel Off., 8th Regt., F. A. Repl. Depot, Camp Jackson, S. C.; Supply Officer, in command Supply Co., 85th F. A., equipping regt. for overseas, Montgomery, Ala. Disch., 18 Dec. '18.
- LOBDELL, H. E. (IV) 1st Lt., Inf. Pvt., Off. Tr. Camp, 14 May '17; 2d Lt., Inf., 15 Aug.; 1st Lt., 23 Aug. '18, 5th Co., 1st Prov. Tr. Regt., Plattsburg, N. Y., 14 May '17; 10th Co., 151st Depot Brig., Camp Devens, Mass., 14 Aug.; Adj., 3d Tr. Bn., 151st Depot Brig., 10 May '18; Asst. to Port Personnel Adj., Port of Embarkation, Hoboken, N. J., 28 Feb. '19; Transport Personnel Adj., U.S.S. Peerless, between U. S. and France, 15 Mch.; Shore duty, Hoboken, N. J., 30 Aug. '19. Disch., 24 Sept. '19.
- LOGAN, R. W. (II) Capt., C. A. C. 2d Lt., C. A. C., 9 Aug. '17; 1st Lt., 9 Aug.; Capt., 5 Feb. '18. 2d C. A. C. Tr. Camp, Ft. Monroe, Va., 9 Aug. '17. A. E. F., Dec. '17—June '19; Heavy Arty. Sch., Mailly, Jan. '18; Prov. Howitzer Regt., 8th British Howitzers, Toul Front, Apr.; Inst. in Arty., Organization and Tr. Center No. 2, Limoges, May; Adj., and in command, 1st Bn., 58th Arty., C. A. C., July; detached duty, Postal Express Service Hq., Paris, Jan. '19. Toul Sector, Second Army Area (Moselle River). Ft. Strong, Boston, Mass., June—Aug. '19.
- LOVEJOY, G. M. (II) 1st Lt., C. A. C. Pvt., Off. Tr. Camp, 27 Aug. '17; 2d Lt., C. A. C., Nov.; 1st Lt., 10 May '18. 2d Off. Tr. Camp, Plattsburg, N. Y., 27 Aug. '17; C. A. C. Tr. Sch., Ft. Monroe, Va., Sept.; Coast Defense of Boston, Dec.; assigned to an overseas regt. Oct. '18, disbanded upon signing of armistice. Disch., Apr. '19.
- LOWE, R. V. (XV) Ensign, U. S. N. R. F. Entered Service, 9 Apr. '17; U.S.S. Vermont, Feb.—May '18; attached to U.S.S. New York, flagship of sq. of battleships operating with the British Grand Fleet, June—Dec. '18; present when German fleet surrendered.
- LOWENGARD, R. O. (XV) 2d Lt., F. A. Pvt., 3d Off. Tr. Sch., 5 Jan. '18; 2d Lt., F. A. Camp Upton, N. Y., 5 Jan. '18. A. E. F., 24 Apr. '18—25 Apr. '19; Arty. Sch., Saumur, France; 328th F. A., 5 Aug. '18. Toul Sector, Oct.—Nov. '18. (Pages 40, 41 and 45.)
- LUNN, J. A. (II) 1st Lt., C. W. S. 2d Lt., Engrs., 16 Jan. '18; 1st Lt., C. W. S., 22 Oct. '18. Asst. to Dept. Engr., Hq. Northeastern Dept., U. S. 16 Jan. '18. A. E. F., May '18—Sept. '19; 30th Engrs.; transferred to C. W. S., 22 Oct. '18; Asst. Div. Gas Officer, Hq. 33d Div.; Reparation Comm. of the American Comm. to Negotiate Peace, Army of Occupation. See Civilian Record.
- LYONS, R. T. (III) 2d Lt., F. A. Pvt., Off. Tr. Camp, 27 Aug. '17; 2d Lt., F. A., Nov. '17. 2d Off. Tr. Camp, Plattsburg, N. Y., 27 Aug. '17; 302d F. A. Camp Devens, Mass., Dec.; Sch. of Fire for F. A. Ft. Sill, Okla., June '18; Hq., 12th F. A. Brig., Camp McClellan, Ala., Aug. '18—Feb. '19.
- McCLELLAND, R. F. (IV) Corp., M. P. Pvt., Inf., 1 June '18; Corp.; transferred to M. P. A. E. F., 7 Aug. '18—12 Apr. '19; 160th Inf.; 1st Army Hq., Souilly, France.
- MCDONALD, H. J. (I) Capt., Engrs. Pvt., Off. Tr. Camp, 27 Aug. '17; 2d Lt., Engrs., 25 Oct.; 1st Lt., 7 Feb. '18, Capt., 1 May '18. 2d Off. Tr. Camp, Plattsburg, N. Y., 27 Aug. '17; resigned to accept comm. in Regular Army, 25 Oct.; Engr. C., Off. Tr. Camp, Ft. Leavenworth, Kan., 10 Nov.; Co. A, 319th Engrs., Camp Fremont, Calif., 2 Jan. '18; Personnel Adj., 319th Engrs., 1 May; in command of Co. M, 5th Engr. Tr. Regt., Camp Humphreys, Va., 11 June '18; 9th Engr. Tr. Regt., Camp Fremont, Calif., 2 Nov.; Co. D, 3d Engrs., Schofield Barracks, Hawaii, 5 Jan.—1 Apr. '19.
- MCDONALD, R. E. (X) Pvt., C. A. C. Entered service, 4 Nov. '18; 15th Co., C. A. C., Ft. Andrews, Boston, Mass., attempted to enlist in military service at beginning of war, advised by army officials to enter munitions business until notified. See Civilian Record.
- McDOUGALL, J. G. (VII) Capt., C. A. C. 2d Lt., C. A. C. 9 Aug. '17; 1st Lt., 17 Oct.; Capt., 1 Aug. '18. C. A. C. Tr. Sch., Ft. Monroe, Va., Aug. '17. A. E. F., 27 Dec. '17—1 Dec. '19; Heavy Arty. Sch., Mailly-le-Camp, Dec. '17; Inst., Organization and Tr. Center No. 3, Clermont-Ferrand, Apr. '18; attached Btry. C, 51st Regt., C. A. C., Bois de la Reine, 12 July; Inst., Heavy Arty. Sch., Angers, Aug.; Bn. Adj., 1st Bn., 55th C. A. C., 15 Oct.; Btry. Comdr., Btry. E, 55th C. A. C., 15 Nov.; Officer Convoyer, conveying Gen. Haller's Army from France to Poland via Germany, 15 Apr.—20 July '19; Renting, Requisitions and Claims Dept., Aug.—Dec. '19. Meuse-Argonne Offensive.
- McGRADY, L. L. (XV) 1st Lt., A. S. Entered Service, 20 Aug. '17; Inst., served as Adj. and Personnel Adj., School of Military Aeronautics, M. I. T., 21 May '17—Oct. '18; in command of a company of casuals, and taking instruction in flying, Kelly Field, Texas, 4 Oct. '18—4 Jan. '19. (Page 12.)
- McLAUGHLIN, R. J. (XV) 1st Lt., C. A. C. Pvt., Off. Tr. Camp, 14 May '17; 2d Lt., C. A. C., 15 Aug.; 1st Lt., Oct. '18. 1st Off. Tr. Camp, Plattsburg, N. Y., 14 May '17. A. E. F., 11 Aug. '17—Mich. '19; Btry. A, 1st Bn. Trench Arty. C., C. A. C. Cambrai; Aisne-Marne Offensive (Château-Thierry); St. Mihiel Offensive; Meuse-Argonne Offensive

TECHNOLOGY'S WAR RECORD

- McLELLAN, D. H. (IV) Lt. (j. g.), U. S. N. R. F. (A). Sea. 2c., U. S. N. R. F. (A), 10 Dec. '17; C. P. O., 1 Jan. '18; Ensign, 1 Mch.; Lt. (j. g.), 1 Nov. '18. Naval Aviation Detachment, M. I. T., 12 Dec. '17; Inspector of Navy seaplanes, Curtiss Aeroplane Co., Buffalo, N. Y., 29 Jan. '18; Office of Chief of Naval Operations, Washington, D. C., 15 Sept. '18—21 Feb. '19.
- McMANUS, J. D. (XIV) Lt. (j. g.), U. S. N. R. F. (A). Sea. 2cl., U. S. N. R. F., 10 Dec. '17; C. Q. M., (A), 1 Jan. '18; Ensign, 15 May; Lt. (j. g.), 1 Apr. '19. Ground School, M. I. T., 10 Dec. '17; Engr. duties, under Inspector of Engr. Material, (A), U. S. N., Brooklyn Aeronautic Dist., Keyport, N. J., 1 Feb., and Garden City, N. Y., 13 July '18—6 Aug. '19. Worked on development of NC-4 and other NC boats.
- McNEILL, W. I. (XV) 1st Lt. C. W. S. 1st Lt., Gas Defense Equip. Sn. C., 28 Dec. '1; transferred to C. W. S. 2d Sept. '18. U. S., 28 Dec. '17—28 Feb. '19; in charge Requirements and Progress Sect., Gas Defense Div., C. W. S.; after armistice, in charge Planning and Accounting Dept.
- MacRAE, DUNCAN (V) Capt., C. W. S. Entered Service, 7 Aug. '18; in charge Special Investigations Sect., Development Div., C. W. S., Nela Park, Cleveland, Ohio, Aug. '18—Feb. '19.
- McWHIRK, CLARA V., Bacteriologist, Comm. for Prevention of Tuberculosis, Rockefeller-Foundation, France, Aug. '18—Jan. '19; with Red Cross Comm. to Palestine, Feb.—May '19.
- MAGUIRE, J. F., JR. (V) Corp., Inf. Pvt., Inf., 27 Aug. '18; Corp., 11 Sept. '18. 151st Depot Brig., Camp Devens, Mass.; attached C. W. S., Cleveland, Ohio, 21 Sept. '18; transferred to M. I. T. Inf. unassigned, as Inst. furloughed indefinitely. Disch., 9 Jan. '19.
- MALMFELDT, CARL (IV) Pvt., Engrs. Entered Service, 17 May '18. A. E. F., 14 June '18—29 July '19 Center Sector, Alsace; Meuse-Argonne Offensive, last phase. Divisional Citation.
- MANN, H. G. (XV) Pvt., Q. M. C., Methods and Procedure Div., Q. M. C., 14 July '18; transferred to Motor Transport Student Off. Tr. Sch., Sept. '18. See Civilian Record.
- MARINE, J. S. (II) 1st Lt. A. S. A. Pvt., 1 cl., Aviation Sect., Sig. C., 9 June '17; 1st Lt., A. S. A. 4th Sq., School of Military Aeronautics, M. I. T., 9 June '17. A. E. F., 22 Aug. '17—17 Dec. '18; French Flying Sch. Tours and Issoudun; Pilot, 99th Aero Sq., Observation, 11 Apr. '18; located at Haussimont (Marne), Amanty (Meuse), and Luxeuil-les-Bains, in southern Vosges Mts. Rheims-Chalons Sector, Toul Sector, Belfort Sector (lower Alsace). Seriously injured in an accident after forced landing, 1 Sept. '18. Disch., 9 Oct. '19.
- MARSILIUS, N. M. (XV) Capt., Ord. Corps. 1st Lt., U. S. R., 4 June '17; Capt., Ord. Corps, 28 June '17. U. S., 4 June '17—Feb. '19; Officer in Charge of Foundry, Blacksmith Shop and Hydraulic Press Dept., Rock Island Arsenal, Ill.; detached service, recruiting mechanics for service in Rock Island Arsenal, 1 Jan. '18; Officer in Charge of Tool Mfg. Dept., Mch. '18.
- MARTIN, R. P., JR. (VI) 2d Lt., Sig. C. Pvt., Sig. C. Sch., 22 Feb. '18; Corp., 1 Mch.; 2d Lt., 26 Aug. '18. Sig. C. Sch., Burlington, Vt., 22 Feb. '18; Sig. Off. Tr. Camp, Camp Stanley, Texas, 7 May; Inst. and Supply Off., 3d Student Co., Sig. Off. Tr. Camp, Camp Meade, Md., 23 Sept.—17 Dec. '18.
- MARTINEZ, J. M. (V) Sgt., C. W. S. Pvt., Ord. Corps, 14 Dec. '17; Pvt. 1 cl., 1 Oct. '18; Sgt., C. W. S., 15 Nov. '18. 154th Depot Brig., Camp Meade, Md., 14 Dec. '17; 118th Ord. Depot, Camp Wadsworth, Mch. '18; 3d Prov. Reg., Camp Hancock, Ga., May; transferred to C. W. S., Edgewood Arsenal, Md. Disch., 20 Dec. '18.
- MASON, S. S. (IV) 2d Lt., A. S. A. 2d Lt., Aviation Sect., Sig. C., 23 Feb. '18; later, A. S. A. Inst., aeronautics and allied subjects, School of Military Aeronautics, M. I. T., Engr. Off. Sch., M. I. T., Ground School, Cornell University, Ithaca, N. Y., Ground School, Austin, Texas, Feb. '18—Feb. '19, and also for six months before entering Service.
- MATTHEWS, E. C. (II) 2d Lt., F. A. Pvt., F. A., 16 Apr. '17; Corp., 25 Aug.; 2d Lt., 10 July '18. A. E. F., 3 Oct. '17—30 Mch. '19; 102d Regt., F. A.; went into action, 7 Feb. '18; Saumur Arty. Sch., 1 Apr.; Inst., Saumur Arty. Sch., July '18—Jan. '19. Chemin des Dames Sector.
- MEDDING, W. L. (XV) Capt., Engrs. 2d Lt., Engrs., 16 Oct. '17; 1st Lt., Feb. '18; Capt., July '18. Engr. Off. Tr. Camp, Ft. Leavenworth, Kan., 16 Oct. '17; 318th Engrs. (Sappers), 6th Div., Vancouver Barracks Wash., Jan. '18. A. E. F., 8 May '18—6 July '19; 6th Engrs. (Sappers), 3d Div.; Inst. in bridging, Army Engr. Sch.; Office of Chief Engr., General Hq., Dec. '18; travelled over entire area of old battlefields on western front, collecting data on the work of the allied and enemy engrs.; 601st Engrs., Mch. '19.
- MEHAFFEY, W. C. (II) Asst. Naval Constructor, C. C., U. S. N., 1 Dec. '17. Boston, 1 Dec. '17; Annapolis, 15 Jan. '18; New Orleans, La., Feb.—Nov. '18.
- MELOY, T. K. (XV) Capt. Engrs. Pvt., Off. Tr. Camp, 25 Aug. '17; 1st Lt., Engrs., 1 Feb. '18; Capt., 10 May '18. U. S., 25 Aug. '17—30 Aug. '18; Ft. Hancock, Ft. Myer, Ft. Leavenworth, Camp Lee, Vancouver Barracks, Camp Leach, Topographical Office, 604th Engrs., Camp Glenburnie, Md. A. E. F., 30 Aug. '18—10 Aug. '19; 604th Engrs.; Engr. Officer, cons. of Rest Camp, Knotty Ash, Liverpool, 1st Engrs., 15 Feb. '19. Meuse-Argonne Offensive; Army of Occupation. Regimental Citation.
- MILLER, A. M. (I) 1st Lt., F. A. U. S. R. Pvt., F. A., Nov. '17; Sgt., Apr. '18; 2d Lt., June; 1st Lt., F. A., U. S. R., Apr. '19. 3d Off. Tr. Sch., Camp Dix, N. J., Nov. '17; F. A. Repl. Depot, Camp Jackson, S. C., Apr. '18. A. E. F., June '18—Jan. '19; Graduate of Arty. Sch., Saumur, France, 1 Oct. '18; Graduate of Tractor Arty. Sch., Gien, 1 Nov.; Btry. Officer and Orientation Officer, 144th F. A., 65th F. A. Brig.
- MILLER, C. G. (VI) 1st Lt., Sig. C. Camp Devens, Mass., and A. E. F., 301st Field Sig. Bn. (Page 12.)
- MILLER, F. O. (XI) Pvt., A. S. Aerial Photography and Mapping, A. S., Cornell University, Ithaca, N. Y., 17 Apr.—13 Sept. '18. A. E. F., 6 Oct. '18—5 May '19. In training until armistice, then assigned to a photographic unit doing aerial mapping and making official historical works of photographic material in hand.

REGISTER OF MILITARY RECORDS

- MILLER, H. L. (VI) 1st Lt., C. A. C. 2d Lt., C. A. C., 26 Oct. '17; 1st Lt., 21 May '18. 2d Tr. Co., Ft. Monroe, Va., 26 Oct. '17; Ft. Strong, Mass., 15 Apr. '18; Coast Defense Staff, Coast Defense of Boston, Ft. Warren, Mass., 15 May; Hq. Co., 73d Arty., C. A. C., Ft. Banks, Mass., 15 June; Gas Defense Sch., Camp Devens, Mass., Sept.; Q. M., Ft. Banks, Oct.; Supply Off., Motor Transport Officer, Surplus Property Officer, Purchasing and Contracting Officer, Ft. Banks, 1 Jan. '19; detailed to Ord. Dept., Ft. Banks, 2 Sept. '19. See Civilian Record.
- MISKOVSKY, R. J. (XV) 1st Lt., C. A. C. Pvt., Inf., 5 Sept. '17; Corp., 15 Sept.; Sgt., 12 Oct.; 2d Lt., C. A. C., 13 Nov.; 1st Lt., 21 May '18. 341st M. G. Bn., Camp Funston, Kan., 5 Sept. '17; C. A. C. Tr. Sch., Ft. Monroe, Va., 1 Dec.; Observation Work, Langley Field, Va., May '18; attached to A. S., taking course in aerial gunnery, Selfridge Field, Mich., 7 July. A. E. F., 21 Sept. '18—17 Apr. '19; aerial observation instruction, Tours; 99th Aero Sq., engaged in instruction work with 26th, 29th, and 82d Divisions in training areas, U. S., Apr. '19 to date (Dec. '19); Personnel Adj., Commissioned Branch, assigned as Demobilization Officer, Mitchel Field, L. I., N. Y., Apr. '19; transferred back to C. A. C., assigned to 39th Arty. Brig., Camp Jackson, S. C.
- MONTAGUE, P. N. (XIII) 1st Lt., A. S. A. Entered Service, 20 Apr. '17; Sgt. A. S.; 1st Lt., A. S. A., 22 Sept. '17. A. E. F., 28 Oct. '17—22 Jan. '19; 1st Pursuit Group, 95th Aero Sq. Toul Sector, 15 May—30 June '18; Châteauf-Thierry Sector, 1-31 July. Prisoner of war, 31 July—29 Nov. '18.
- MOODY, A. E. (XV) 1st Lt., C. A. C. Pvt., Off. Tr. Camp, 15 May '17; 2d Lt., C. A. C., 15 Aug.; 1st Lt., 26 Oct. '17. 1st Off. Tr. Camp, Plattsburg, N. Y., 15 May '17; transferred to C. A., Ft. Monroe, Va., June; Ft. Rodman, New Bedford, Mass.; sent as aerial observer to School of Military Aeronautics, Austin, Texas, Nov. '17; attended schools for aerial observers, Langley and Selfridge Fields. A. E. F., 16 Sept. '18—12 Feb. '19; assigned 90th Aero Sq., Nov. '18.
- MORSE, H. E. (I) Chief Radio Elec., U. S. N. R. F. Radio Elec. 3 cl., 7 May '17; Radio Elec. 2 cl.; Radio Elec. 1 cl.; Chief Radio Elec., 1 Jan. '19. A. E. F., '17—'19; U.S.S. K. L. McNeal; U.S.S. Piqua; mine sweeping and patrol work in French waters.
- MULLIKEN, R. S. (V) Pvt., C. W. S. Research Div., American University Experiment Station, Bu. of Mines, Washington, D. C., 15 Oct.—20 Dec. '18. See Civilian Record.
- NELSON, G. A., JR. (I) Capt., C. A. C. 2d Lt., C. A. C., 9 Aug. '17; 1st Lt., 9 Aug. '17; Capt., 22 Jan. '18. C. A. Tr. Sch., Ft. Monroe, Va., 1 Sept. '17. A. E. F., Dec. '17—June '19; 52d Arty., C. A. C., Haussimont, Marne; Btry. I, 52d Arty., Alsatian front, Apr. '18; Btry. D, 52d Arty., C. A. C., May; designated by commanding general to take over first 14" naval guns assigned to the Army, Nov.; in command Btry. F, 42d Arty.; Forwarding Camp, Le Mans, Dec. '18. Resignation accepted, 28 July '19. St. Michel Offensive; Meuse-Argonne Offensive.
- NEUMANN, H. C. (IV) Lt. (j. g.), U. S. N. Asst. Naval Constructor, Navy Yard, Charlestown, Mass.
- NEWELL, W. B. (II) 2d Lt., Inf. Pvt., Inf., 5 Jan. '18; 2d Lt., 15 July '18. 3d Off. Tr. Camp, Camp Upton, N. Y., 5 Jan. '18; Co. H, 307th Inf., 77th Div. A. E. F., 20 Apr. '18—11 Jan. '19; Bn. Scout Officer, 129th Inf., 33d Div. Baccarat Sector, 16 June—15 July '18; Villers-Bretonneux Sector, 1-25 Aug.; Albert Sector, 25 Aug.—10 Sept.; Meuse-Argonne Offensive, 26 Sept.—21 Oct. Gassed, 21 Oct. '18.
- NEWHALL, R. P. (VI) 1st Lt., M. G. Bn. 302d M. G. Bn., Camp Devens, Mass. U. S., May '17—July '18. A. E. F., July '18—Jan. '19; 302d M. G. Bn.
- NICHOLS, P. F. (VII) 2d Lt., Sn. C. Pvt., Inf., 5 Oct. '17; Sgt., Food Div., Sn. C., 1 Mch. '18; 2d Lt., 27 Aug. '18. 151st Depot Brig., Camp Devens, Mass., 5 Oct. '17; on staff of pathological laboratory, Base Hosp., Camp Devens, 16 Jan. '18; Food Div., Sn. C., 8 Feb.; Surgeon-Gen. Office, Washington, D. C., 10 Feb.; engaged in research work on keeping qualities of dehydrated vegetables, biological laboratories, M. I. T., 18 Feb.; School for Nutrition Officers, Camp Greenleaf, Ga., 30 Aug.; M. I. T., 19 Nov.—24 Dec. '18.
- NILES, A. S. (I) Capt., Engrs. 2d Lt., Engrs., 28 May '18; Prov. 1st Lt., and Capt. (T.) 28 Aug. '18. 4th Engr. Off. Tr. Camp, Camp Lee, Va., 28 May '18; 7th Engr. Tr. Regt., Camp Humphreys, Va., 25 Sept.; 79th Engrs., Camp Leach, D. C., 20 Oct.; 3d Engrs., Corozal, Canal Zone, 13 Dec. '18. Disch. as Capt., 1 Apr. '19. Remained in service as 1st Lt., Engrs., Regular Army.
- NOYES, L. I. (IV) 1st Lt., C. A. C. 2d Lt., C. A. C., 26 Oct. '17; 1st Lt., 17 May '18. C. A. Tr. Sch., Ft. Monroe, Va., 26 Oct. '17; Coast Defense of Chesapeake Bay; Aerial Observers School, Langley Field, Va., May '18; Machine-gun training, Selfridge Field, Mich., June '18. A. E. F., 7 Sept. '18—30 May '19; Air Repl. Center, St. Maixent; Patient with influenza-pneumonia, in hospitals at St. Maixent, Quiberon and Karnac, Oct.—Jan. '19; Off. Repl. Depot, Gondrecourt, Jan. '19. Dept. of War Damages, Peace Comm., Paris; Gondrecourt, until May '19.
- O'BRIEN, J. S. (X) 2d Lt., A. S. A. Entered Service, 28 Aug. '17; Ground School, M. I. T., 3 Nov. '17; Gerstner Field, La., Jan. '18. A. E. F., Sept. '18—Apr. '19; Issoudun, France, Sept.—Oct.
- O'BRIEN, T. F. (II) (XIII) Lt., C. C., U. S. N. Lt. (j. g.), U. S. N., 13 Nov. '17; Lt., 1 July '18. Asst. Naval Constructor, Industrial Dept., Navy Yard, Portsmouth, N. H.
- O'NEILL, J. E. 2d Lt., Engrs. A. E. F.
- PAINE, G. T. (I) Lt., C. C., U. S. N. Lt. (j. g.), C. C., U. S. N., 17 Nov. '17; Lt., 1 July '18. Office of superintending constructor, Bethlehem Shipbuilding Corp., San Francisco, Calif.
- PARKER, H. G. (VII) 2d Lt., M. C. Pvt., M. C., 15 Dec. '17; Sgt., 1 Aug. '18; 2d Lt., 3 Sept. '18. Stationed at Army Med. School, Washington, D. C. Disch., 28 Mch. '19.
- PARKINSON, SIMPSON (IV) reported in service of Canadian Army.

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- PAUL, A. H., JR. (I) Cadet, A. S. Pvt. 1 cl., A. S., 25 May '18; Cadet, Scott Field, Belleville, Ill. Disch., 29 Nov. '18.
- PAYNE, E. B. (VI) 2d Lt., Ord. Corps. Pvt., Ord. Corps, 13 Oct. '17; Sgt., 13 Oct.; Ord. Sgt., Nov.; 2d Lt., 10 Jan. '18. 120th Ord. Depot., 13 Oct. '17; tests and instruction in machine guns, Camp McClellan, Ala. 15 Oct.; Camp Meade, Md., 30 Jan. '18; administrative duties, Ord. Depot, Camp Fremont, Calif., 18 Apr. transferred for technical instruction in motors and arty., Raritan Arsenal, N. J., 9 Aug.; Port of Embarkation, Hoboken, N. J., 1 Nov. '18. Disch., 13 Dec. '18. See Civilian Record.
- PERKINS, L. W., 3d Lt., U. S. Coast Guard. Cadet, U. S. Coast Guard, 1 Aug. '16; 3d Lt., 1 Aug. '18. On duty in New York Harbor guarding the loading of ammunition vessels, 27 July '18—27 Mch. '19; Watch Officer, U.S.S. Androscoggin, Boston, Mass., 27 Mch. '19, to date (Dec. '19).
- PERRY, H. H., 1st Lt., Ord. Corps. Enlisted, 11 June '17. Engr. Div., Small Arms Ammunition Sect., Ord. Dept.; Frankford Arsenal, 16 July '17; Peters Cartridge Co., Kings Mills, Ohio, 26 Aug.; Dominion Arsenal, Lindsay, Ont., 23 May—12 Sept. '18. A. E. F., 17 S. P., 17 S. P., 18—12 Feb. '19; on technical staff, Small Arms Ammunition Sect., Ord. Dept., Hq. S. O. S., Tours, travelling to depots and lines of communication. Army of Occupation, 24 Oct. '18—18 Jan. '19.
- PETERSON, O. R. (I) Capt., Engrs. 2d Lt., Engrs., 10 Nov. '17; 1st Lt., Feb. '18; Capt., Apr. '18. Co. C, 310th Engrs., 10 Nov. '17; 601st Engrs., Feb. '18. A. E. F., 16 July '18—28 July '19; 7th Engrs., 5th Div., Aug. '18. St. Mihiel Offensive.
- PETTIBONE, M. W. (IV) Sgt. 1 cl., A. S. Entered Service, 13 Dec. '17. A. E. F., Mch. '18—Apr. '19; 480th Aero Construction Sq., A. S., Designs and Projects Div., A. S., Hq. at Tours, Aug., and at Paris, Nov. '18.
- PFOHL, R. E. (IV) Pvt., Inf. Accepted for limited military service, 31 Aug. '18; Syracuse Recruit Camp, 4 Sept., 17 Bn., 153d Depot Brig., Camp Dix, N. J., 17 Nov. '18. Disch., 27 Nov. '18. Rejected three times for active military service. See Civilian Record.
- PHILLIPS, L. S. (IV) Lt. (j. g.), U. S. N. Coxswain, U. S. N. R. F., 8 Oct. '17; Ensign, U. S. N.; Lt. (j. g.), 1 July '19. 1st Naval Dist., 8 Oct. '17; Naval Academy, Annapolis, until 29 May '18; Atlantic Fleet, June '18; New London, Conn., Sept. '18—Mch. '19; on U.S.S. Eagle No. 1, service in northern Russia, May—Aug. '19; Brest, France, Sept. '19.
- PLATT, J. C., JR. (XV) Capt., Inf. 2d Lt., Inf., 20 Nov. '16; 1st Lt., May '17; Capt., Aug. '19. Detached Officers List, attached to and commanding Co. E, 14th Inf., Camp Lewis, Wash.; 44th Inf., Jan. '18; Operations Officer, Regt. Staff, 44th Inf., Small Arms School, Camp Benning, Ga.; 5th Inf., Sept. '19. A. E. F., Prov. Inf. Brig., 5th Inf., in Oct. '19.
- PLUMMER, C. E. (I) 2d Lt., C. A. C. Pvt., C. A. C., 13 Apr. '17; 2d Lt., 26 June '18. 17th Co., Ft. Revere, Mass., 13 Apr. '17; C. A. Tr. Sch., Ft. Monroe, Va., 1 Apr. '18. A. E. F., 6 Oct. '18—18 July '19; 50th Regt., C. A. C.; after armistice, assigned 230th Co., Military Police Corps, doing duty as Asst. Provost Marshal.
- POND, W. F. (III) Capt., C. W. S. 1st Lt., Engr. R. C., 13 Aug. '17; Capt., 11 Dec. '17. 2d, Off. Tr. Camp, Plattsburg, N. Y., 25 Aug. '17; Engr. Off. Tr. Sch., Belvoir, Va., 1 Oct.; American University, Washington, D. C., 27 Nov. '17. A. E. F., 25 Dec. '17—9 Nov. '18; Co. B, 30th Engrs. (Gas and Flame), later 1st Gas Regt.; British training area for special gas troops, Flanders, 21 Jan. '18; front line service with British, Flanders, 1 Mch.; detached service, Hq. Chief of Gas Service, Tours, 25 Mch.; Gas Experimental Field, Chaumont, 25 May; Co. A, 30th Engrs., 23 June; sailed to U. S. to assist in organization of 2d Gas Regt., 10 Oct. '18. Toul Sector; Vosges Mts. with 7th French Army; St. Mihiel Offensive; Meuse-Argonne Offensive. Disch., 5 Dec. '18.
- POTTER, P. O. (I) Pvt. 1 cl., Inf. 4th Recruit Co., Recruit Depot, Ft. Slocum, N. Y., 30 Sept. '18. Disch., 15 May '19.
- PROCTOR, C. D. (II) 2d Lt., Ord. R. C. Pvt., Machine Gun Bn., 19 Sept. '17; Corp.; 2d Lt., Ord. R. C., 12 Dec. '18. Co. A, 304th M. G. Bn., Camp Upton, N. Y., 19 Sept. '17; Student and Inst., Q. M. Tr. Sch., Rock Island Arsenal, Ill., 22 Oct.; Q. M. Tr. Sch., Raritan Arsenal, N. J., 1 June '18; Arty. Supply Truck Depot, Chicago, 6 June; Ord. Tr. Sch., Aberdeen Proving Grounds, Md., 26 Aug. '18. Relieved from active duty, 12 Dec. '18.
- PROCTOR, J. W. (II) 1st Lt., Ord. Corps. Commissioned, 7 June '17; active duty, 8 Jan. '18. Inspection and Engr. Divisions, Ord. Dept., organized an inspection system for Browning Automatic Rifle magazines; U. S. Cartridge Co., Lowell, Mass.; Bridgeport, Conn. Still in service, 5 Sept. '19.
- PRYOR, W. L. (II) 1st Lt., Ord. Corps. Remington Arms Co., Ilion, N. Y.
- QUILHOT, H. J. (II) Ensign, U. S. N. R. F. (A.). C. Q. M. (A.), U. S. N. R. F., 12 July '18; Ensign, Feb. '19. Ground School, M. I. T., 29 July '18; Key West, Fla., Nov. '18; Pensacola, Fla., Feb.—Apr. '19. See Civilian Record.
- RAMSEY, J. R. (formerly Ramsbottom) (VI) Maj., C. A. C. 2d Lt., C. A. C., 9 Aug. '17; 1st Lt., 9 Aug. '17; Capt., 30 Jan. '18; Maj., 2 Nov. '18. C. A. Tr. Sch., Ft. Monroe, Va., 3 Sept. '17. A. E. F., 11 Dec. '17—24 Nov. '18; Arty. Sch.; 3d Bn., 44th Arty., C. A. C.; commanded btry. of British 8" howitzers at front, 10 June—10 Nov. '18; Bn. Comdr., last few weeks. Champagne Sector; St. Mihiel Offensive; Meuse-Argonne Offensive.
- RANDOLPH, F. H. (II) Ensign, U. S. N. R. F. (E.). C. M. M., U. S. N. R. F., 14 Aug. '17; Warrant Machinist, 12 Dec.; Ensign (E.), 22 May '19. U. S. N. Steam Engr. Sch.; Pelham Bay and Stevens Institute, Hoboken, N. J., 14 Aug. '18; Jr. Watch Officer, U.S.S. Rondo, 20 Dec. '18—25 Apr. '19. Released from active duty, 28 May '19. See Civilian Record.

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- RAYMOND, E. H. (I) Capt., C. A. C. 1st Lt., C. A. C., 5 Sept. '17; Capt., 4 Mch. '18. Entered Service, 5 Sept. '17; Ft. Stark, N. H.; 4th Co., C. A., Ft. Constitution, Portsmouth, N. H.; Canal Zone, 22 Feb.—30 Apr. '19. As btry. comdr. directed first target practice of 16-inch gun at Perico Island, Panama.
- RICHARDSON, J. C. (XV) Radio Elec. U. S. N. U.S.S. Nahant. Naval Forces, A. E. F.
- RICHMOND, K. C. (II) Ensign, U. S. N. R. F. Entered Service, 18 June '17; 1st Naval Cadet School, M. I. T.; attached 3d Naval Dist. for target practice, 1 Oct. '17; Ex. Officer, Sub-Chaser 34, 1 Dec. '17. A. E. F.; Spring '18—20 Nov. '19; C. O., Sub-Chaser 34, and unit of three chasers, duty in English Channel, 10 June '18—16 Feb. '19; transferred to command Sub-Chaser 206 and six chasers with mine-sweeping detachment, North Sea, Feb. '19; transferred as Aide to Commander, Mine Force, U.S.S. Black Hawk, Orkney Islands, 1 June '19. Navy Cross. (Pages 60 and 241.)
- RIDER, W. J. (II) Sgt., M. C. Sanitary Inspector, Aviation Field No. 2, Hempstead, N. Y.
- ROBERTS, C. H. M. (XIV) Capt., Ord. Corps. 1st Lt., Ord. Corps, 18 May '17; Capt., 6 Mch. '19. Entered Service, 18 May '17; Springfield Arsenal, Mass., 22 Sept.; detailed to aviation, flying duty, Wilbur Wright Field, Dayton, Ohio, 26 Nov. '17. A. E. F., 15 Feb. '18—31 Oct. '19; with British Air Force, 15 Feb.—15 Apr. '18; with French Air Service, 1 May; 103d Aero Sq. (U. S.), 2 July; Aircraft Armament Officer, Hq., 2d Army, 22 Oct.; Aircraft Armament Officer, Hq., Army of Occupation, Coblenz, 6 May '19; with Ord. Dept., July—Oct. '19. Somme Offensive; St. Mihiel Offensive; Meuse-Argonne Offensive; Army of Occupation. (Page 12.)
- ROBERTSON, S. S. (X) Pvt., Chemical Service Sect., American University Experiment Station, Washington, D. C. Disch. 20 Dec. '18.
- ROBINSON, R. K. (I) Pvt., Engrs. Co. I, Engr. Off. Tr. Sch., 12 Sept.—11 Dec. '18. See Civilian Record.
- ROGERS, F. C. (I) Capt., Engrs. Prov. 2d Lt., Engrs., 16 Oct. '17; 1st Lt., Apr. '18; Capt., June '18. Ft. Leavenworth, Kan., Oct. '17; New York City. Spinal injuries resulted in a stay of more than a year in the hosp.; at Gen. Hosp. No. 41, Staten Island, N. Y., Aug. '19.
- ROGERS, H. L. (I) Maj., F. A. Pvt., Off. Tr. Sch., 13 May '17; Capt., F. A., 15 Aug.; Maj., 14 Aug. '18. Off. Tr. Camp, Madison Barracks, N. Y., 13 May '17; Inst., F. A., 2d Tr. Camp, Ft. Oglethorpe, Ga., Aug.; School of Fire, Ft. Sill, Okla., Dec. '17. A. E. F., 8 May '18—6 Aug. '19; School of Fire, Le Valdaun, France, May—June '18; 153d F. A. Brig. trained at Mencon, Brittany, and was attached 90th Div., Aug.; C. O., 2d Bn., 308th F. A.; Brig. assigned 78th Div., Oct.—Nov.; 10th F. A., 3d Div., 16 Nov. '18; 308th F. A., 20 Dec. '18. Toul Sector; St. Mihiel Offensive; Meuse-Argonne Offensive; Army of Occupation.
- ROGERS, J. A., JR. (II) 1st Lt., Inf. Entered Service, 14 May '17; 2d Lt., Inf. R. C., 15 Aug.; 1st Lt., Inf., 31 Dec. '17. 302d Inf.; Bu. Adj., 151st Depot Brig., Camp Devens, Mass.; Hq. Demobilization Group, Camp Devens, Mass. (Sept. '19).
- *ROPER, GEORGE, JR. (III). See Roll of Honor (page 100).
- ROSS, C. E. (VI) Ensign, U. S. N. R. F. (A.). Pvt., U. S. N. R. F. (A.), 15 Apr. '18; Ensign, 12 Dec. '18. Enlisted 15 Apr. '18; Ground School, M. I. T., 8 May; Flying School, Miami, Fla., Aug.; Advanced Flying School, Pensacola, Fla., 16 Oct.; qualified as naval pilot, 12 Dec.; Pilot, instructed in flying in H-16's, 12 Dec. '18—10 Feb. '19.
- ROSS, W. B. (X) 2d Lt., C. W. S. Pvt., Inf., 20 Sept. '17; Pvt., 308th Engrs.; Sgt., Sn. C.; Sgt., Chem. Serv. Sect., 2d Lt., C. W. S. 1 May '18. Research work, chemical gas absorbers, especially soda lime, American University Experiment Station, Washington, D. C., until 15 Mch. '19.
- ROUNDS, E. W. (II) Lt. (j. g.), U. S. N. R. F. (A.). Sea. 2 cl., U. S. N. R. F. (A.), 29 Oct. '17; C. Q. M., 21 Jan. '18; Ensign, 28 June; Lt. (j. g.), 1 Jan. '19. Ground School, M. I. T., 29 Oct. '17—Mch. '18; submarine patrol, Hampton Roads, Va., May '18; Inst., Ground School, Naval Aviation Detachment, M. I. T., July; Inst. Advanced Flying, Pensacola, Fla., Jan. '19; Bu. of Cons. and Repair, Washington, D. C., June '19 to date (Aug. '19). See Civilian Record.
- RYAN, T. W., JR. (I) 1st Lt., Engrs. Pvt., Off. Tr. Camp, 14 May '17; 2d Lt., Engr. O. R. C., 15 Aug.; 1st Lt., Engrs., 13 Sept. '18. 1st Off. Tr. Camp, Plattsburg, N. Y., 14 May '17; Engr. Camp, American University, Washington, D. C., June '17. A. E. F., 13 Sept. '17—18 May '19; Ecole du Genie, Versailles, Oct.—Nov.; 1st Regt. Engrs., 1st Div., 1 Dec. '18; Toul Sector, 15 Jan. '18; Montdidier Sector, June—July; St. Mihiel Offensive; Meuse-Argonne Offensive; Army of Occupation, Coblenz, 1 Dec. '18—10 May '19. (Page 171.)
- SANBORN, L. P. (X) Flying Cadet, A. S. A. Pvt. 1 cl., School of Military Aeronautics, Princeton, N. J., 12 Nov. '17; Camp Dick, Texas, 2 Mch. '18; Carlstrom Field, Arcadia, Fla., 15 Apr.; airplane accident resulted in nervous collapse, and four months out of service; transferred for temporary duty, C. W. S., Washington, D. C. Disch., 31 Dec. '18. (Page 271.)
- SANBORN, P. N. (IV) Pvt., Engrs. A. E. F.; Co. F, 101st Engrs., 26th Div.
- SANDELL, H. N. (IV) 2d Lt., F. A. Pvt., Inf., 5 Oct. '17; 2d Lt., F. A., 31 Aug. '18. Supply Co., 301st Inf., Camp Devens, Mass., 5 Oct. '17; 4th F. A. Off. Tr. Sch., 15 May '18; F. A. Repl. Depot, Camp Jackson, S. C. Disch. 31 Jan. '19.
- SARTI, E. E. (IV) Pvt., Cav. Troop D, 310th Cav., Ft. Ethan Allen, Vt.
- SAVILLE, THORNDIKE (I) 1st Lt., A. S. Pvt., Off. Tr. Camp, 27 Aug. '17; 2d Lt., C. A. R. C., 27 Nov.; 1st Lt., Sig. C., R. A., 27 Dec.; 1st Lt., A. S. 2d Off. Tr. Camp, Plattsburg, N. Y., 27 Aug. '17; Ft. Wetherill, Newport, R. I., 27 Nov.; Cons. Div., Sig. C., Langley Field, Va., as Officer in Charge of water works, sewerage and sub-soil draining; Supply Div., A. S., Langley Field, 5 Jan. '18—12 Mch. '19.

TECHNOLOGY'S WAR RECORD

- SAWYER, C. B. (XIV) 2d Lt., Inf. Pvt., Off. Tr. Camp, 1 Aug. '18; 2d Lt., Inf., 15 Sept. '18. Inst., Motor Dept. Naval Aviation School, M. I. T.
- SAWYER, R. H. (II) Ensign, U. S. N. R. F. Sea. 2 cl., U. S. N. R. F., 14 Dec. '17; C. Q. M., 21 Jan. '18; Ensign, 17 May '18. Naval Aviation Detachment, M. I. T., 14 Dec. '17; Inst., School of Military Aeronautics, and Naval Aviation Detachment, M. I. T.; transferred School for Aeronautical Engrs., M. I. T.; transferred Bu. of Cons. and Repair, 6 Sept. '18.
- SCANNELL, R. H. (IV) 1st Lt., Engrs. Ambulance Driver, S. S. U. 13, American Field Service, 2 June '17. Pvt., U. S. Ambulance Service, 16 Sept. '17; 1st Sgt., A. S., 15 Oct.; 2d Lt., Engrs., 14 Mch. '18; 1st Lt., 22 Feb. '19. A. E. F.; G-2-C (topography), G. H. Q.; Inst., Beaune University. Croix de Guerre with Silver Star. (Page 150.)
- SCHOONMAKER, L. E. (VI) Capt., C. A. C. 2d Lt., C. A., 31 Aug. '17; 1st Lt., 11 Oct.; Capt., 27 Jan. '18. 2d Off. Tr. Camp, Ft. Monroe, Va., 31 Aug. '17; Ft. Hancock, Sandy Hook, N. J., until Aug. '18. A. E. F., 30 Sept. '18—31 Dec. '19; French Anti-Aircraft Defenses of Paris; C. Q. M. Office, Tours; G-1, Baggage Service, Embarkation Office, Brest. Germany, M. T. C., Silesian Brig., 5 Jan. '20 to date (Feb. '20).
- SEARLES, T. M. (XIII) Lt. Comdr., C. C., U. S. N. Entered U. S. N., 6 July '09; Ensign, 7 June '13; Lt. (j. g.) 7 June '16; Lt., 31 Aug. '17; Lt. Comdr., 21 Sept. '18. C. C., Norfolk Navy Yard; in charge of cons. of 18 submarines building for U. S. N., San Francisco, Calif.
- SEELY, C. K. (VI) 2d Lt., A. S. Pvt., Aviation Sect., Sig. C., 14 Aug. '17; Mr. Sig. Elec., Oct.; 2d Lt., A. S., Apr. '18. 57th and 84th Aero Sq., Kelly Field, Texas, 14 Aug. '17; School of Military Aeronautics, M. I. T., Feb. '18; Mineola, L. I., N. Y., Apr. '18. A. E. F., July '18—Mch. '19; Casual Engr. Officer, A. S.; 1st Air Depot, Colombey-les-Belles.
- SENER, E. G., JR. (XV) Capt., Engrs. Pvt., Off. Tr. Camp, 14 May '17; 1st Lt., Engrs. R. C., 15 Aug.; Capt., Engrs., 10 June '18. 1st Engr. Off. Tr. Camp, Plattsburg, N. Y., 14 May '17; Belvoir, Va., 8th Engrs. (Mounted), Camp Baker, Ft. Bliss, Texas, 29 Aug. '17—12 Apr. '19; served as Recreation Officer, Officers Mess Officer, Athletic Officer, Censor, Exchange Officer, Personnel Adj., Co. Comdr., Topographical Officer Regtl. Supply Office, Regtl. Adj.
- SEWALL, E. D. (II) Pvt., C. A. C. Entered Service, Oct. '18; Off. Tr. Camp, Ft. Monroe, Va.; Fts. Warren, Standish, Banks, Heath, and Andrews, Boston Harbor. Worked at M. I. T. on tank "America," '17.
- SEWALI, SAMUEL (II) 1st Lt., Sig. C. Entered Service, 19 Nov. '17. A. E. F., 19 Nov. '17—1 Feb. '19; Div. of Research and Inspection, Sig. C., detailed to work with the French Bu. of Inventions in the Sorbonne. Disch., 9 May '19. (Page 279.)
- SEYMOUR, W. H. (II) Capt., C. A. C. 2d Lt., C. A. C., 9 Aug. '17; 1st Lt., 9 Aug. '17; Capt., 11 Feb. '18. C. A. Off. Tr. Sch., Ft. Monroe, Va., Sept. '17; Ft. Rodman, New Bedford, Mass.; Coast Defenses of Balboa, Canal Zone, 14 Feb. '19 to date (Jan. '20).
- SHAND, R. G. (XV) Lt., C. C., U. S. N. Lt. (j. g.), C. C., U. S. N., 1 Dec. '17; Lt., 1 July '18. Naval Academy, Annapolis, Md., 1 Dec. '17; Navy Yard, Norfolk, Va., 15 Jan. '18 to date (Aug. '19).
- SHERINYAN, W. K., Pvt., M. G. Bn. Entered Service, 6 Oct. '17. A. E. F., June '18—July '19; 314th M. G. Bn., Hq. Detachment; Inst., Engr. Drawing, Engr. College, A. E. F. University, Mch.—June '19. Artois Sector, 23 Jan. '18; St. Mihiel Offensive; Meuse-Argonne Offensive.
- SHERMAN, F. P., Lt., U. S. N. Midshipman, U. S. N., 17 June '14; Ensign, June '17; Lt. (j. g.), Oct. '17; Lt., Feb. '18. Naval Academy, Annapolis, Md., 17 June '14. A. E. F.; U.S.S. Nashville, Mediterranean Sea, protecting convoys from Gibraltar to points east, Salonika, Alexandria, Marseille, etc., June '17—Aug. '18; U.S.S. Murray, destroyer force, Brest, Sept. '18—May '19. Various submarine attacks on convoys.
- SIDELINGER, R. L. (VI) 1st Lt., C. W. S. Detached duty with Gas Defense Service, Washington, D. C. A. E. F. SIEGEL, SAMUEL (X) Sgt. 1 cl., C. W. S. U. S., 5 Oct. '17—9 June '19; experiments with poison gases, Washington, D. C.
- SIMPSON, C. F. (IV) 2d Lt., F. A. Pvt., F. A., 5 May '17; Pvt. 1 cl., 1 Sept.; Corp., 15 Sept.; Sgt., 12 Jan. '18; 2d Lt., 1 Aug. '18. U. S., 5 May '17—Dec. '19; Btry. B, 126th F. A.; Camp Cody, N. M.
- SINDLER, J. J. (X) 2d Lt., C. W. S. Pvt., Gas Defense Service, 19 Sept. '17; Corp., Nov.; Sgt., Jan. '18; Sgt. 1 cl., May; 2d Lt., C. W. S., Sept. '18. Gas Defense Div., C. W. S., Astoria Detachment, Astoria, N. Y., operating director of testing laboratory, testing gas mask absorbents, until 1 Jan. '19.
- SMITH, F. B., JR. (II, XV) 1st Lt., Sn. C. Tech Ambulance Unit, June '17. Y. M. C. A. Purchasing Office, Paris, July '17—Feb. '18. 1st Lt., Sn. C., U. S. A., Feb. '18; Medical Purchasing Office, Paris. (Page 87.)
- SMITH, W. W. (VI) 2d Lt., Sig. C. Corp., Sig. C., 14 Dec. '17; 2d Lt., 30 Mch. '18. Radio School, College Park, Md., 14 Dec. '17. A. E. F., 20 Apr. '18—20 Mch. '19; assigned Div. of Research and Inspection, stationed in Paris until 8 Aug.; making actual tests of sound locating apparatus, French front, Aug.—Oct.; began mfr. of Sound Direction Finding Apparatus, Paris, 8 Oct. '18. With French Army, Amiens-Montdidier Front, Aug.—Oct. '18. (Page 278.)
- SOLAKIAN, H. N. (III) Pvt., Sig. C. Entered Service, 18 Apr. '18. Trained for meteorological work in France, College Station, Texas, four months. A. E. F., 21 Sept. '18—8 Apr. '19; 321st Field Sig. Bn., Meteorological Div., Sig. C. Toul Sector; Metz Sector.
- SPEAR, G. D. (VI) 1st Lt., A. S. A. Pvt. 1 cl., A. S., 2 July '17; 1st Lt., 13 May '18. School of Military Aeronautics, M. I. T., July '17. A. E. F. 1 Oct. '17—2 Feb. '19; flying training with Royal Flying Corps, England, until Sept. '18; transferred to 11th Aero Service Sq., 1st Day Bombardment group, co-operating with American 1st Army, 15 Sept.; Casual, 18 Dec. '18. St. Mihiel Offensive; Meuse-Argonne Offensive.

REGISTER OF MILITARY RECORDS

- SPENCER, EDMOND (VI) Capt., Inf. Wagon Co., 301st Am. Tr., Camp Devens, Mass.
- SPITZ, GERTRUDE T. (VII) Staff Nurse, Harvard Unit, General Hosp. No. 22, attached to Royal Army Med. Corps, B. E. F., Dannes-Camiers, France, Mch. '17—Jan. '19.
- STAGG, J. H., JR. (IX) Ensign, U. S. N. R. F. C. M. M., U. S. N. R. F., 28 Feb. '18; Ensign, Naval Ord., 9 Oct. '18. Naval Inspector of Ordn., Alloy Steel Forging Co., Carnegie, Pa.
- STEARNS, F. A. (II) Ord. Sgt., Ord. Corps. Sgt., Ord. Corps., 13 June '17; Ord. Sgt., 26 Mch. '19. Enlisted, 13 June '17; active duty, Watertown Arsenal, Mass., 25 Sept.; Watervliet Arsenal, N. Y., Oct. '17. A. E. F., 26 Nov. '17—21 May '19; Intermediate Ord. Dept. No. 1, Nevers, and No. 2, Gievres; Organization and Tr. Center No. 1, Libourne, Apr. '18—Jan. '19.
- STEARNS, H. C. (IV) Ensign, C. C., U. S. N. R. F. C. M. M., C. C., U. S. N. R. F., 12 Dec. '17; Ensign, 22 Dec. '17. Office of Chief of Staff, Boston, Mass., Dec. '17; Cons. Officer, Deer Island Tr. Station, Boston Harbor, Jan. '18, and Wissahickon Barracks, Cape May, June '19. Released from duty, 9 Aug. '19.
- STERNER, HAROLD (IV) Sea. 2 cl., U. S. N. Aide for information, Camouflage Dept., 3d Naval Dist.; dept. kept record of types of camouflage on vessels entering New York Harbor, sending drawings to Washington to be checked with original designs.
- STEVENS, G. R. (VI) Mr. Sig. Elec. Sig. R. C. Pvt., Sig. R. C., 10 May '17; Mr. Sig. Elec. 11 May '17. Disch., 28 July '17, at request of Sec. of the Navy, to work with the Submarine Signal Co. in the Naval Branch. See Civilian Record.
- STEVENS, N. F. (VIII) 2d Lt., A. S. A. U. S. Army Balloon School, Arcadia, Calif. U. S., 8 Jan. '18—7 Jan. '19.
- STEVENS, R. S. (XV) 2d Lt., C. W. S. Pvt., Gas Defense Service, 15 Dec. '17; Sgt. 1 cl., Feb. '18; 2d Lt., C. W. S., 31 July '18. Production Service Mgr., Gas Defense Plant, Long Island City, N. Y.
- STOCKMANN, E. B. (XV) Ensign, U. S. N. R. F. Submarine Service, U. S., 15 Aug. '18—1 Feb. '19. See Civilian Record.
- STONE, H. C. (I) Pvt. 1 cl., Engrs. Btry. E, 309th Hv. F. A., Camp Dix, N. J., 15 Dec. '17; Co. E, 26th Engr., 21 Feb. '18—21 Mch. '19. A. E. F., 18 Aug. '18—12 Mch. '19; developed points of water supply in Zone of Advance. St. Mihiel Offensive, 12—16 Sept. '18; Meuse-Argonne Offensive, 26 Sept.—11 Nov. '18.
- STORROW, J. J., JR. (VI) Lt. (j. g.), U. S. N. R. F. Enlisted 5 July '17; active duty, Chief Elec. U. S. N. R. F., 31 Aug.; Ensign, 14 Feb. '18; Lt. (j. g.), 5 July '18. U.S.S. Proteus, 31 Aug. '17; U.S.S. Agamemnon, 14 Feb. '18; Transport Service, eight round trips to France before and seven after armistice, 14 Feb. '18—21 June '19. One engagement with a submarine, at time of torpedoing of U.S.S. Mount Vernon, 12 Sept. '18. See Civilian Record.
- STORY, JACOB (XIII) C. C. M., U. S. N. R. F. Enlisted, Charlestown Navy Yard, 7 Aug. '17; active service, League Island, Philadelphia, Pa., 19 Dec. '17. A. E. F., 10 Jan.—24 Nov. '18; U. S. Naval Air Station, Panillac, France; U. S. Naval Air Station, Brest, 8 Feb.—16 Nov. '18.
- STRIBLING, S. R. (VI) Capt., C. A. C. 2d Lt., C. A. C.; 1st Lt.; Capt., 6 Mch. '18. Entered Service, 28 Aug. '17; Ft. Monroe, Va.; 2d Co., Galveston, Texas; 64th Art., 29 June '18. A. E. F., 14 July—24 Nov. '18. Ft. Crockett, Galveston, 24 Nov. '18 to date (Aug. '19).
- STRONG, THEODORE (VI) 2d Lt., C. A. O. R. C. Pvt., C. A. C., 12 Sept. '18; 2d Lt., C. A. O. R. C., 29 Nov. '18. Ft. Hancock, N. J., 12 Sept. '18; Ft. Monroe, Va., 19 Sept. '18. Inactive service, 29 Nov. '18.
- STRONG, W. B. (VI) 1st Lt., C. A. C. 2d Lt., C. A. C., 26 Oct. '17; 1st Lt., 13 Mch. '18. C. A. Tr. Sch., Ft. Monroe, Va., Oct. '17; Gunnery Inst., and Arty. Engr., Ft. Revere, Mass.; Radio Officer, Columbia University, New York City; Supply Officer, Hq. Co., 28th Art., Ft. Strong, Boston. Disch., 7 May '19.
- STROUT, H. E., JR. (XV) Capt., Engrs. Prov. 2d Lt., Engrs., 16 Oct. '17; 1st Lt., Mch. '18; Capt., May '18. Ft. Leavenworth, Kan., Nov. '17; 319th Engrs., Camp Fremont, Calif., 4 Jan. '18; Recruiting duty, Los Angeles, Feb.; on Colonel's Staff, Mch.—Sept. '18. A. E. F., 24 Sept. '18—10 June '19; 319th Engrs., cons. work on Camp Pontanezen, Brest.
- SULLIVAN, A. P. (XIV) Sgt. 1 cl., C. W. S. Pvt., Inf., 19 Sept. '17; Corp., C. W. S., 1 May '18; Sgt. 1 cl., 1 July '18. Hq. Co., 304th Inf., Camp Devens, Mass., 19 Sept. '17; transferred to Ord. Co., American University, Washington, D. C., Dec. '17; transferred to C. W. S., Mch. '18. A. E. F., 3 Aug.—23 Dec. '18; Hanlon Field, Experimental Station.
- SULLIVAN, W. A. (IV) Lt., C. C., U. S. N. Asst. Constructor, Navy Dept., Annapolis, Md.; Asst. Construction Supt., Navy Yard, Portsmouth, N. H.
- SWAIN, D. N. (XV) 1st Lt. Inf. Pvt., Off. Tr. Camp, 12 May '17; 2d Lt., Inf., 15 Aug.; 1st Lt., 25 Oct. '17. 1st Off. Tr. Camp, Plattsburg, N. Y., 12 May '17. A. E. F., 2 Apr. '18—11 Feb. '19; 30th Inf. M. G. Co.; 7th M. G. Bn., 3d Div.; 1st Depot Div., St. Aignan, France. Aisne Defensive; Champagne-Marne Defensive; Aisne-Marne Offensive; Meuse-Argonne Offensive. (Page 175.)
- SWAIN, R. B. (II) 1st Lt., Engrs. Pvt., Engrs., 25 Sept. '17; 2d Lt., 9 July '18; 1st Lt., 3 Sept. '18. A. E. F., 26 Sept. '17—5 Apr. '19; Co. B. 101st Engrs., 26 Div. Chemin des Dames Sector; Aisne-Marne Offensive; Rupt Sector; St. Mihiel Offensive; Troyon Sector; Meuse-Argonne Offensive.
- *SWAN, L. A. (II). See Roll of Honor (page 101).
- TAPLEY, W. L. (XV) 2d Lt., Ord. Corps. Washington, D. C., 16 Nov. '17; Camp Hancock, Ga., Mch. '18; Development Sect., Aberdeen Proving Grounds, Md., May '18—Jan. '19.

TECHNOLOGY'S WAR RECORD

- TARPLEY, D. G. (IV) 1st Lt., Engrs. American Field Service, 23 June '17; joined Div. of Cons. and Forestry, Engrs., in France; 18 Lt., 7 Apr. '18. Foreign service, 23 June '17—5 July '19. Chemin des Dames, Oct. '17. (Page 87.)
- THOMAS, F. E. (I) 2d Lt., F. A. Pvt., Off. Tr. Camp, 27 Aug. '17; 2d Lt., F. A., Nov. '17. Off. Tr. Camp, Ft. Niagara, N. Y., Aug. '17; 3d F. A., Camp McClellan, Dec.; Inst., 3d Off. Tr. Camp, Ft. Oglethorpe, Ga., Feb. '18; Balloon Sch., Ft. Still, Okla., Apr. '18. A. E. F., 14 July '18—22 May '19; Valdahon Atty. Sch., Aug.; training 6th F. A. Brig. recruits, Oct.; Aviation Sect., 7th Army Corps, Nov.; assigned to Arty. of 91st Div., Dec., later to 53d F. A. Brig.; assigned Co. E, 103d Am. Tn. (Horsed Bn.), attached 53d F. A. Brig. (28th Div.) Dec. '18—May '19.
- THOMSON, G. W. (I) Lt. (j. g.) (T.), U. S. N. Philadelphia Navy Yard, 1 Dec. '18; Naval Academy, Md., 20 Dec.; Mare Island, Calif., 13 Feb. '19. See Civilian Record.
- THRASHER, W. E. (XI) Capt., Sn. C. Pvt., C. A. C., 19 Dec. '17; Corp., M. C., 11 Mch. '18; Sgt. 1 cl., 2 Aug.; 2d Lt., Sn. C., 26 Aug. '18; 1st Lt., Engrs., 2 Feb. '19; Capt., Sn. C., 10 Mch. '19. 28th Co., C. A., Boston 19 Dec. '17; transferred to Washington, D. C., 18 Feb. '18; Water Tank Tn. No. 301, 1 June; Water Tank Tn. No. 302, 26 Aug. '18. A. E. F., 29 Sept. '18—5 July '19; attached 26th Engrs., 2d Army Sector, 20 Oct.; reattached Water Tank Tn. No. 302, 11 Nov.; assigned 6th Engrs., 3d Div., Andernach, Germany, 2 Feb. '19. 2d Army Defensive; Meuse-Argonne Offensive. Casual Off. Detachment, Camp Dix, N. J., 5 July '19; Camp Sn. Engr., Langley Field, Va., 3 Sept. Disch., 3 Oct. '19. See Civilian Record.
- THYBERG, A. S. (II) American Field Service, S. S. U. No. 511, France.
- *TIERNEY, H. J. (VI). See Roll of Honor (page 122).
- TOURTELLOTE, N. E. (IV, XV) Capt., C. A. C. Pvt., M. C., Base Hospital No. 44, June '17; 2d Lt., C. A. C., 5 Aug. '17; 1st Lt., 9 Aug.; Capt., N. A., 7 Mch. '18. C. A. Tr. Sch. Ft. Monroe, Va., Aug. '17. A. E. F., Dec. '17—July '19; Student, later inst., Tractor Arty. Sch., near Paris; in charge of Motor Instruction, Organization and Training Center, No. 5; incoming Troops Officer, Bordeaux Embarkation Camp, in charge of all casual officers and men, Nov.; attached Inspector-Gen. Dept., G. H. Q., inspecting all motor equipment of U. S. Troops, France, occupied Germany and Belgium, until June '19. Aisne Defensive (with French Army), May '18; 2d U. S. Army, Nov. Departmental Commendation, Inspector-Gen., G. H. Q. C. O., Co. A, 57th Regt., 31st Brig., C. A. C., July—Oct. '19. (Page 172.)
- TOYE, K. B. (II) 2d Lt., Inf. U. S., 25 Aug. '17—7 Jan. '19; M. G. Co., 301st Inf., Camp Devens, Mass.; Vocational Unit, New York University, New York City, 15 May '18.
- TROMBLA, D. C. (X) Corp., Sig. C. Enlisted, 24 July '17; Camp Devens, Mass., 7 Nov. '17—8 July '18. A. E. F., July '18—June '19; 317th Field Sig. Bn., attached 5th Army Corps, to maintain telephone communication with combat divisions; after armistice, 9th Army Corps, at St. Mihiel, later at Nogent-en-Bassigny. St. Mihiel Offensive; Meuse-Argonne Offensive.
- TURNER, C. E. (VII) Sn. Engr., (1st Lt., grade), U. S. Public Health Service. Shipyard Sanitation Detail, in charge of Dist. No. 1, Eastport, Maine, to R. I., 5 June '18—1 July '19.
- TUTEIN, D. A. (X) Ensign, U. S. N. R. F. C. M. M., U. S. N. R. F., 16 May '18; Ensign, 8 Jan. '19. Stationed at office of Naval Inspector of Ord., Midvale Steel and Ordnance Co., Philadelphia, Pa., production and inspection work in dist. on naval ord. contracts.
- TUTTLE, A. E. (VI) Lt., U. S. N. Sea. 2 cl., U. S. N. R. F., Class 4, 20 Nov. '17; C. Q. M. (A.), Naval Reserve Flying Corps, 1 Jan. '18; Ensign, U. S. N., 15 May; Lt. (j. g.), 1 Oct.; Lt., 1 Apr. '19. Inspectors' Course, Naval Aviation Detachment, M. I. T., 10 Dec. '17; Inspector of Engr. Material (Aero), U. S. N., Brooklyn Aeronautical Dist., Keyport, N. J., and New York City, 27 Jan. '18 to date (Oct. '19). (Pages 41 and 45.)
- TWOMEY, E. F. (XI) Ensign, U. S. N. R. F. (A.). Cadet, U. S. N. R. F. (A.), 20 Dec. '17; Ensign, July '18. Naval Aviation Detachment, M. I. T., Dec. '17; in office of superintending Constructor of Aircraft, Curtiss Aeroplane Plant, Buffalo, N. Y., Jan. '18; experimental work on wood and laminated airplane parts, Forest Products Laboratories, Madison, Wis., May; Bu. of Cons. and Repair, Washington, D. C., July; ordered to office of Superintending Constructor of Aircraft, New York City, July '18. Inactive duty, 25 Mch. '19. See Civilian Record.
- *TYLER, J. C. (II). See Roll of Honor (pages 96 and 150).
- VENABLE, C. S. (V) Capt., C. W. S. Development Div., C. W. S., 5 Oct. '18. See Civilian Record.
- WALKER, G. E. (XV) 2d Lt., Ord. R. C. Entered Service, 15 Nov. '17. Inspection Div., Ord. Dept., Explosives Branch, Philadelphia District.
- WALLACE, J. M. (V) 2d Lt., Ord. R. C. Entered Service, 26 Mch. '18. Special Tr. Co., Ord. Tr. Camp; Military Inst., Camp Hancock, Ga., Oct.—Dec. '18. See Civilian Record.
- WALLIS, J. E., JR. (XV) Capt., C. A. C. 2d Lt., C. A. C., 9 Aug. '17; 1st Lt., 9 Aug. '17; Capt., 15 Jan. '18. C. A. Tr. Sch., Ft. Monroe, Va., 5 Sept. '17. A. E. F., 12 Dec. '17—15 July '19; H. A. Hq., Maily, France, 1 Jan. '18; preliminary training as aerial observer, 210th French Escadrille, Feb.; French School of aerial gunnery, Cazaux, Mch.; assigned Escadrille 122, eighth French army, near Toul, Apr.; Escadrille 41, Gondreville, 91st Aero Sq., Gondreville, May; airdrome near Bar-le-Duc, Sept.; Operations Officer, 1st Army Observation May; Group, Oct.—Dec. '18. Disch., 4 Oct. '19. Toul Sector, 26 Apr.—11 Sept. '18; St. Mihiel Offensive; Meuse-Argonne Offensive. Wounded, 10 Aug. '18. Distinguished Service Cross; Citation from G. H. Q. (Pages 137 and 201.)
- WATSON, P. B. (X) 2d Lt., C. W. S. Research Div., C. W. S., 14 Oct. '18—1 June '19. See Civilian Record.

REGISTER OF MILITARY RECORDS

- WELLS, B. S. (I) Lt., C. C., U. S. N. Lt. (j. g.), U. S. N., 1 Dec. '17; Lt., 1 July '18. Appointed Asst. Naval Constructor, 1 Dec. '17, ordered to Naval Academy, Annapolis, Md., Asst. office and planning superintendent, Hull Div., Mare Island Navy Yard, Calif., Jan. '18 to date (Oct. '19).
- WELLS, B. D. (II) 1st Lt., C. W. S. 1st Lt., Ord. Corps, 1 June '17; transferred to C. W. S. Design Sect., Gun Div., Ord. Dept., Washington, D. C., June '17; transferred to Gas Plant, Edgewood Arsenal, Md., 16 Nov. '17; Asst. in development of methods for large production filling of gas shells, spring '18; in charge of cons. operation and development of everything pertaining to filling of various types of smoke grenades and shells, Aug. '18. Disch., 26 Feb. '19.
- WELLS, E. D. (XV) 2d Lt., A. S. A. Cadet, A. S., 27 Oct. '17; 2d Lt., A. S. A., 22 May '18. Ground School, University of Illinois, 27 Oct. '17; Flying training, Kelly Field, Texas; Inst. in flying, Kelly Field, 22 May '18—22 Jan. '19.
- WENZELL, A. H. (VI) Lt. (j. g.), U. S. N. Ensign, U. S. N., Apr. '18; Lt. (j. g.) Sept. '18. Active service aboard U.S.S. New Mexico, doing patrol work along Atlantic lanes, May '18—Aug. '19. Escorted U.S.S. George Washington with Pres. Wilson's party back from France.
- WESTBROOK, L. R. (V) 2d Lt., C. W. S. Pvt., Chemical Service Section, N. A., 8 Apr. '18; 2d Lt., C. W. S., 5 Aug. '18. Stationed at Washington, D. C., Apr. '18; assigned special duty, Cleveland Laboratory of Edgewood Arsenal, Cleveland, Ohio, in charge of research group; stationed with Development Div., C. W. S., Nela Park, Cleveland, in charge of Confidential Information Sect., 5 Aug. '18—21 Apr. '19.
- WHETZEL, J. C. (X) 1st Lt., C. W. S. Pvt., Off. Tr. Camp, Aug. '17; 1st Lt., F. A., Nov. '17; transferred to Gas Tr. Sect., Sn. C., '18, to Chemical Service Sect., and to C. W. S. Ft. Harrison, Ind.; Washington, D. C. A. E. F., Aug.—Dec. '18; Gas Field, Chaumont; Div. Gas Off. Camps, Choignes and Chinon; A. E. F. Laboratory, Paris.
- WHITE, T. H. (VI) 1st Lt., A. S. Pvt., Off. Tr. Camp, 13 May '17; 2d Lt., C. A., 1st Lt., A. S. 1st Off. Tr. Camp, Ft. Harrison, Ind., 13 May '17; Ft. Hamilton, N. Y., 29 Aug.; Langley Field, Va., 1 Oct. '17—25 Oct. '18; Washington, D. C., 26 Oct.—31 Dec. '18.
- WHITMORE, J. T. (IV) Sgt., Q. M. C. Camp Supply Office, Camp Devens. U. S., 20 Nov. '17—18 Feb. '19.
- WHITNEY, R. T. (XI) Lt. (j. g.), U. S. N. R. F. (A.). Sea. 2 cl., U. S. N. R. F., 17 July '17; Ensign, 4 Mch. '18; Lt. (j. g.), 1 Sept. '18. Ground School, M. I. T., July '17; Hampton Roads, Va., 25 Nov.; Pensacola, Fla. 30 Dec. '17. A. E. F., 1 Apr.—1 Dec. '18; U. S. Naval Air Station, Finisterre.
- WILLIAMS, A. R. (VI) Capt., Engrs. 2d Bn., 205th Engrs.; Co. E, 217th Engrs. (Sappers), Camp Beauregard, La.
- WILLIAMS, L. A. (II) Pvt. 1 cl., Inf. 8th Mass. Inf., N. G., Mch. '17; Co. C, 103d Inf., 26th Div., Aug. '17. A. E. F., 26 Sept. '17—10 Apr. '19. In all engagements with 26th Div., including Aisne-Marne Offensive, Chateau-Thierry; St. Mihiel and Meuse-Argonne Offensives. Severely wounded, compound fracture of skull, Marcheville, 26 Sept. '18. (Page 180a.)
- WILLIAMSON, H. C. (IV) Maj., Inf. Pvt., Off. Tr. Camp, 14 May '17; 2d Lt., Inf., 14 Aug.; Capt., 12 Feb. '18; Maj., 4 Oct. '18. 1st Off. Tr. Camp, Plattsburg, N. Y., 14 May '17; Div. Hq., Camp Devens, Mass.; Adj. Gen. Dept., Feb. '18. A. E. F. 3 June—12 Dec. '18; Div. Adj., Hq. 76th Div.
- WILLIFORD, F. E. (VI) Col., C. A. C. Entered Service, 16 June '02; Maj., C. A. C., 27 Dec. '17; Lt.-Col., 18 June '18; Col., 22 Oct. '18. A. E. F., 18 Aug. '17—23 Mch. '19; 30th Brig., C. A. C.; in charge of training and development of all trench arty. in A. E. F. Aisne-Marne Offensive (Chateau-Thierry); Meuse-Argonne Offensive. Citation from G. H. Q. (Page 155.)
- WILSON, D. W. (V) C. W. S.
- WIRT, J. B. (X) Capt., Inf. 2d Lt., Inf., 9 Aug. '17; 1st Lt., 1 Mch. '18; Capt. 24 June '18. 17th Inf., garrison duty, Kan., Georgia, Mass., Md.; Camp Meade, Md. (Aug. '19).
- WOOD, H. L. (VI) 1st Lt., Inf. Pvt. 1 cl., Off. Tr. Camp, 5 Jan. '18; Corp., Inf., 28 Mch.; Sgt., 1 Apr.; 2d Lt., 13 July; 1st Lt., 6 Sept. '18. 3d Off. Tr. Camp, Camp Upton, N. Y., 5 Jan. '18; Co. F, 307th Inf., 27 Mch. '18. A. E. F., 7 Apr. '18—19 May '19; Co. L, 130th Inf., 13 July '18; Bn. Intelligence Officer, 3d Bn., 130th Inf., 33d Div., 28 July—18 Sept.; Bn. Adj., 19 Oct.—24 May '19. Somme-Amiens Sector with Australian Corps, 27 July—6 Aug. '18; Albert-Dernancourt Sector with 18th Div., B. E. F., 7—20 Aug.; Meuse-Argonne Offensive, 26 Sept.—11 Nov.; Luxemburg.
- WOOD, W. A. (XV) Q. M. 1 cl., U. S. N. R. F. (A.). Entered Service, 7 May '17. Hon. Disch., 3 July '17, to take up industrial work. See Civilian Record.
- WOOD, W. C. (X) 1st Lt., A. S. A. Pvt. 1 cl., A. S., 6 June '17; 1st Lt., A. S. A., R. M. A., 5 Oct. '17. Inst., Ground School, M. I. T., June '17; School of Military Aeronautics, Toronto, Canada, 6 Aug.; Inst., Ground School, M. I. T., 6 Sept.; Inst. in Aerial Gunnery, Bombing School, Ellington Field, Texas, 30 Jan. '18; Taliaferro Field, Texas, Mch.; Chief Inst. of Ground Training, Pursuit School, Carlstrom Field, Arcadia, Fla., June; Inst., Dorr Field, Fla., Sept. '18. Disch., 16 Dec. '18.
- WOODRUFF, J. T. B. (II) Pvt., Engrs. Ft. Slocum, N. Y., 13 Dec. '17. Hon. Disch., 21 Jan. '18. See Civilian Record.
- WOODWARD, E. M. (IV) Capt., C. A. C. 1st Lt., C. A. C., 25 Aug. '17; Capt., 9 Mch. '18. A. E. F., 22 Apr.—5 Nov. '18; Btry. A, 60th Arty., C. A. C.; Tractor Arty. School, near Paris; H. A. School, Mailly and Angers; six weeks at front; ordered to U. S. on instructing duty, Oct. '18. St. Mihiel Offensive; Meuse-Argonne Offensive, to 22 Oct. '18. Disch., 22 Apr. '19.

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- WOODWARD, P. G. (X) Capt., C. W. S. 2d Lt., Chemical Service Sect., N. A., 8 Dec. '17; 1st Lt., Apr. '18; 1st Lt., C. W. S., 19 July; Capt., 26 Oct. '18. Overseas Laboratory, Dec. '17; detailed to aid Col. Walker, Edgewood Arsenal Feb. '18; later in charge Requirements Sect., Edgewood Arsenal. Disch., Mch. '19. See Civilian Record.
- WOODWORTH, H. O., Ensign, U. S. N. R. F. (E.). Sea., U. S. N. R. F., 6 Apr. '17; Fireman 2 cl., 1 Dec.; Fireman 1 cl., 1 Apr. '18; M. M. 2 cl., 1 July; M. M. 1 cl., 1 Nov.; C. M. M., 15 Nov.; Mch., 6 Mch. '19; Ensign (E.), 29 May '19. U. S., 6 Apr. '17—17 Mch. '19. Abroad, 17 Mch.—1 May '19
- WORKS, N. C. (III) 1st Lt., Inf. Pvt., Off. Tr. Camp, 12 May '17; 2d Lt., Inf. R. C., 15 Aug.; 1st Lt., Inf., 1 Apr. '18. 1st Co., 1st Prov. Tr. Regt., Plattsburg, N. Y., 12 May '17; 151st Depot Brig., Camp Devens, Mass., 15 Aug. '17—12 Dec. '18, except detached service, Small Arms Firing School, Camp Perry, Ohio, June '18.
- WYMAN, L. E. (XI) 1st Lt., Engrs. Pvt., Off. Tr. Camp, 14 May '17; 1st Lt., Engr. R. C., 15 Aug. '17. A. E. F. 28 Sept. '17—23 Apr. '19; French Military School, Versailles, 29 Sept.; assigned 1st Regt. Engrs., 1st Div., 1 Dec.; at front with 1st Div., 15 Jan.—11 Nov.; in command of Hq. Co., 1st Engrs.; in charge of matériel dumps of 1st Div. Toul Sector (Ansanville); Sector west of Montdidier (Cantigny); Aisne-Marne Offensive (Soissons); Saizerais Sector; St. Mihiel Offensive; Meuse-Argonne Offensive; Army of Occupation, Coblenz Bridgehead. (Page 179.)
- YEATON, P. O. (II) Pvt., S. A. T. C. Camp, Plattsburg, N. Y., Aug. '18. See Civilian Record.
- YOUNG, I. W., JR. (XV) Candidate Officer, Engrs. Pvt., 1st Repl. Regt., Engrs., 8 Sept. '18; Engr. Off. Tr. Sch., Camp Humphreys, Va., 30 Oct. '18. See Civilian Record.

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- ABRAMS, J. M. (X) Lt., C. A. C. Commissioned 26 Oct. '17. Coast Defenses of Boston Harbor; 50th Hv. Arty., June '18. A. E. F., 1st Repl. Depot, Dec., '18; General Staff, 1st Army Corps, Mch. '19; Instructed in gunnery and ballistics of Hv. Arty.; in charge of kitchen at Camp Pontanezen, Brest.
- ADAMS, M. W. (VI) 2d Lt., Marine Corps Reserve. Pvt. Marine Corps, 16 June '18; 2d Lt., 26 Aug. '18. Philadelphia Navy Yard, June—22 Dec. '18. See Civilian Record.
- ALLEN, H. B. (XV) 2d Lt., A. S. A. Pvt., French Army, 6 July '17; transferred, A. S., A. E. F., 10 Nov. '17; 2d Lt., A. S., 15 June '18. In France, 4 July '17—4 Feb. '19; Inst. in flying, 3d Aviation Instruction Center. (Page 86.)
- ALLEN, L. J. (II) Pvt., Sig. C., Radio Sect. Entered Service 28 Aug. U. S. Sig. C. Radio School, College Park, Md.; placed on indefinite furlough for radio design, at General Radio Co., Cambridge, Mass., 28 Sept. '19. See Civilian Record.
- *ANGELL, C. M. (VIII). See Roll of Honor (page 93).
- ATWATER, DAVID (VII) reported in Sig. C.
- ATWELL, H. V. (XIV) Mr. Engr. (j. g.), C. W. S. Pvt. Ord. Dept., 6 Apr. '18; Sgt., 1 July '18; transferred to Gas Defense Sect., C. W. S., Aug. '18; Mr. Engr. (j. g.), 29 Nov. '18. Edgewood Arsenal, Md., 6 Apr.—Aug. '18; Nela Park, Cleveland, Ohio, 14 Aug. '18—7 Feb. '19.
- AVERY, J. M. (XIV) 2d Lt., C. W. S. Pvt., Ord. Corps., Apr. '18; Sgt., July '18; 2d Lt., C. W. S., Aug. '18. Edgewood Arsenal, Md., engaged in production of toxic gases, Apr. '18—May '19.
- AYER, C. S. (V) 2d Lt., A. S. A. Pvt., Inf., 19 Sept. '17; transferred A. S., 17 Nov. '17; 2d Lt., A. S., Jan. '18, 83d Div., Camp Sherman, Ohio, Sept. '17; School of Military Aeronautics, University of Ohio, Columbus, Ohio, Nov. '17—Jan. '19.
- BABER, M. J. (XIII) Ensign, U. S. N. R. F. Cadet, Ground School, M. I. T., 8 Jan. '18; C. Q. M., U. S. N. (A.); Ensign, U. S. N. R. F., 25 June '18. Curtiss Aeroplane and Motor Corp., Buffalo, N. Y., 21 Mch. '18; U. S. Naval Aircraft Factory, Philadelphia, Pa., inspecting flying boats of H-16 and F-5-L types, June '18—30 Jan. '19.
- BACHE-WIIG, JOHN (X) 2d Lt., F. A. Cadet, F. A., May '17; 2d Lt., Aug. '17. Res. Off. Tr. Camp, Ft. Sheridan, Ill., 14 May '17; 330th F. A., Camp Custer, Mich., 1 Sept. '17. A. E. F., 30 July '18—14 Mch. '19; transferred 310th T. M. Btry., 160th F. A., 14 Nov. '18.
- BALLANTINE, B. D. (II) 1st Lt., Ord. Corps. Pvt., Ord. Corps., 14 Dec. '17; 2d Lt., 14 Aug. '18; 1st Lt., 7 May '19. A. E. F., 22 Sept. '18—19 July '19; Machine Shop at Mehun-sur-Yevre; in charge Jan.—June '19.
- BANCKER, E. H. (VI) Pvt., A. S. Pvt., A. S., 18 Mch. '18; Candidate, F. A. Cent. Off. Tr. Sch., 12 Oct. '18. Acted as Sgt. training aviation recruits Waco, Texas, Mch. '18, and Charlotte, N. C., 22 May; Casual, Garden City, L. I., 1 Aug.; F. A. Cent. Off. Tr. Sch., Louisville, Ky., 12 Oct.—28 Nov. '18.
- BARBER, H. M. (XI) 2d Lt., A. S. Pvt., F. A., Sept. '17; Corp., Oct. '17; Sgt., Nov. '17; 2d Lt., June '18, 323d F. A., Camp Sherman, Ohio, Sept. '17. A. E. F., June '18—Feb. '19; 8th F. A., Sept. '18.
- BARNES, A. H. (V) Sgt., C. W. S. Pvt., Ord. Corps., 14 Feb. '18; Sgt., 11 July '18; transferred C. W. S., 25 Oct. '18. Washington, D. C., 14 Feb. '18; Lowell, Mass., 25 Mch. '18; Ft. Greene, R. I. Experiment Station, C. W. S., and Arlington Experimental Station until 15 Jan. '19. See Civilian Record.
- BARNES, D. A. (XV, IV) Ensign, U. S. N. (A.). C. Q. M., Ground School, M. I. T., Apr. '18; Ensign, 15 Nov. '18. Ground School, M. I. T., 1 Apr.—22 June '18; Miami and Pensacola, Fla. until 25 Feb. '19.
- BEAL, L. I. (IV) 2d Lt., F. A., Candidate, F. A. Cent. Off. Tr. Sch., Camp Taylor, Ky., 27 Aug. '18; 2d Lt., 18 Dec. '18.

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- BEAVER, RUDOLPH (I) Pvt., Ord. Corps, Railway Mount Gun Sect., 6 Sept. '18. See Civilian Record. (Page 31.)
- BELLIS, C. B. (X) 1st Lt., F. A. Pvt., Ord. Corps, 8 Oct. '17; transferred to F. A., Apr. '18; 2d Lt., 1 June '18; 1st Lt., Oct. '18. Springfield Armory M. G. School, Oct. '17; 3d Of. Tr. Sch., Camp Dix, N. J.; Camp Jackson, S. C.; helped to organize F. A. Repl. Depot and M. G. School, Camp Taylor, Ky.
- BERG, H. J. (II) 2d Lt., A. S. A. Pvt., A. S., 9 Nov. '17; 2d Lt., A. S. A., 23 Mch. '18. Cadet School, Kelly Field, Texas, 26 Dec. '17; School of Military Aeronautics, M. I. T., 16 Jan. '18; Engr. Dept., Ellington Field Texas, 23 Mch.; Asst. Engr. Officer, Motor Overhaul Shop, 3 Apr.; Engr. Officer 271st Aero Sq., Aberdeen Proving Grounds, Md., making flights to test live bombs, bomb sights, and bomb releases, 30 June '18—12 Mch. '18.
- BERLINER, H. A. (II) Pvt., A. S. School of Aerial Photography, Langley Field, Va., 20 Jan. '18; Ithaca, N. Y., Aug.; Madison Barracks, N. Y., Sept.; Langley Field, Oct. '18; Chanute Field, Ill., Oct. '18—Jan. '19.
- BERMAN, ELI (VI) Ensign, U. S. N. R. F. Entered Service, 20 Oct. '18; C. M. M., 1 Dec. '18; Warrant Machinist, 7 Apr. '19; Ensign, 14 June '19.
- BETTS, E. G. (VI) Capt., C. A. C. 1st Lt., 9 Aug. '17; Capt., 1 Feb. '18. 1st Howitzer Regt., 2d Tr. Camp, Ft. Monroe, Va., Aug. '17. A. E. F., 12 Dec. '17—24 June '18; C. O., 8" Howitzer Btry. for two months; at Front six weeks. U. S., June '18—8 Jan. '19; Inst. in Hv. Arty., Ft. Monroe, Va.; C. O., two batteries of Ry. Arty., Ft. Hancock, N. J.
- BIGGAR, W. T. (I) 2d Lt., Engr. R. C. Pvt., Inf., 6 Sept. '17; transferred C. W. S., 6 Oct. '17; Corp., C. W. S., 1 Feb. '18; transferred Engr. R. C., 15 May '18; 2d Lt., Engr. R. C., 11 Jan. '19. Co. D, 301st Inf., Camp Devens, Mass., 6 Sept. '17; transferred to Gas Defense Service, Astoria, L. I., 6 Oct. '17; transferred to Engr. R. C., and sent to M. I. T., 15 May '18; Engr. Off. Tr. Sch., Camp Humphreys, Va., Until 11 Jan. '19.
- BLAISDELL, S. B. (II) Lt. (j. g.), U. S. N. Warrant Gunner (Electrical), U. S. N. R. F., 13 Dec. '17. Ensign, U. S. N., 31 May '18; Lt. (j. g.), 21 Sept. '18. U.S.S. Missouri of Atlantic Fleet, 8 July '18; Receiving Ship at N. Y., Nov. '18; U.S.S. New Mexico of Pacific Fleet, 9 Mch. '19 to present date (17 Nov. '19). See Civilian Record.
- BLANCHARD, C. W. (XV) 2d Lt., A. S. A. Cadet, A. S., 3 Nov. '17; 2d Lt. (R. M. A.), 28 Mch. '18; 2d Lt., A. S. R. C., 13 Mch. '19. Ground School, M. I. T., 3 Nov. '17; Kelly Field, Texas, 18 Jan. '18—28 Mch. '18; Wright Field, Ohio, 30 June '18—4 July '18; Love Field, Dallas, 4 July '18—29 Aug. '18. A. E. F., 20 Aug.—13 Dec. '18; stationed at St. Maixent, France, and with Royal Air Force, Montrose, Scotland, training men to fill in casualties for 14th and 148th Casual Sq. on British Front.
- BLANK, H. M. (XV) Capt., C. A. C. 2d Lt., C. A. C., 9 Aug. '17; 1st Lt., 9 Aug. '17; Capt., 6 Feb. '18. Ft. Monroe, Va., Aug.—Nov. '17. A. E. F., 12 Dec. '17—2 Dec. '18; Hv. Arty. School; Capt. in charge, Btry. A, 52d Arty. St. Mihiel Offensive; Meuse-Argonne Offensive.
- BLODGETT, L. S. (XIII) Ensign, U. S. N. R. F. (A.). Cadet, Naval Aviation Detachment, M. I. T.; inspector of planes in Feb. '18; special duty, Bu. of Cons. and Repair, May '18—28 Jan. '19.
- BLOUNT, H. N. (XV) Sea. 2 cl., U. S. N. R. F. In Service, 5 Feb. '18. U. S. Naval Gun Factory, Washington, D. C., 3 Sept. '18; U. S. Training Station, Newport, R. I.
- BOND, N. A. (XI) Ensign, U. S. N. R. F. (A.), 6 Apr. '18.
- BOUKNIGHT, W. M. (VI) 1st Lt., Inf. 2d Lt., Inf., 15 May '17; 1st Lt., Inf., 19 Dec. '17. A. E. F., 28 June '18—12 June '19. Gerardmer Sector (Vosges), 1 Sept. '18—12 Oct. '18; Meuse-Argonne Offensive, Divisional and Army Citations.
- BOYD, S. M. (X) Sgt., C. W. S. Pvt., Engr. R. C., 17 Jan. '18; Sgt., C. W. S., 17 Dec. '18. Ordered to remain at M. I. T. to complete course; transferred to Ord. Corps, Nela Park, Cleveland, Ohio, 15 Apr. '18; unit transferred to C. W. S. July '18.
- BRADLEY, G. D. (IV) Lt. (j. g.), U. S. N. R. F. (A.). Sea. 2cl., U. S. N. R. F., 17 Oct. '17; Ensign, 6 Feb. '18; Lt. (j. g.), 1 Oct. '18. Boston, Mass., Oct. '17; Buffalo, N. Y., 6 Dec. '17; Wright-Martin Aircraft Corp., Dayton, Ohio, 21 May—Dec. '18.
- BRAISLIN, J. C. (XIII) Ensign, U. S. N. R. F. Commissioned 4 July '18. Senior Watch and Div. Officer, U.S.S. Carrillo and U.S.S. Moncus. Naval Overseas Transportation Service. See Civilian Record.
- BREWER, G. S. (X) Corp., C. W. S. Pvt., Inf., 25 Feb. '18; Corp., 12 Mch.; transferred to Gas Defense Service (later C. W. S.) 17 Mch. '18. 29th Co., 8th Bn., 151st Depot Brig., Camp Devens, Mass., Feb. '18; Gas Defense Service, Philadelphia, Pa., 17 Mch.; New York City, 1 Dec. '18—25 Jan. '19.
- BROWN, H. H., JR. (X) 1st Lt., F. A. Provisional 2d Lt., C. A. C., Sept. '17; commission refused, Nov. '17; 2d Lt., F. A. (N. A.), Feb. '18; 1st Lt., May '18. Camp Sheridan, Ala., Sept. '17—June '18. A. E. F., June '18—Apr. '19; 135th F. A. on 2d Army Front, Sept.—Nov. '18.
- *BROWN, M. C. (XIV). See Roll of Honor (page 102).
- BROWN, R. B. (II) Ensign, U. S. N. R. F., Apr. '18. On U.S.S. Standard Arrow, and U.S.S. Oregonian traveling between New York and France.
- BROWNE, DONALD (VIII) 2d Lt., A. S. Cadet, A. S., 17 June '18. 2d Lt., O. R. C., 16 Jan. '19.
- BRUCKHAUSER, W. K., JR. (XV) Ensign, U. S. N. R. F. (A.). Sea. 2cl., Nov. '17; Ensign stationed at Pensacola, Fla., Feb. '18; New York City in Mch. '19.

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- BUCHANAN, D. R. (XIII, II) 1st Lt., A. S. Commissioned, 18 May '17. A. E. F., 2 Nov. '17—2 Feb. '19, Issoudun and Clermont-Ferrand Flying Schools; with 96th Aero Sq., Apr.—Aug. '18; training in Italy, Aug. '18.
- *BUCK, W. F. (VI). See Roll of Honor (page 103).
- BUERKIN, J. A. (IV) Lt. (j. g.), U. S. N. R. F. (A.). Sea. 2cl., 17 Sept. '17; Ensign, 11 Feb. '18; Lt. (j. g.), Oct. '18. U. S. Naval Aviation Detachment, M. I. T., Sept. '17; Office of Superintending Constructor of Aircraft, Curtiss Plant, Buffalo, N. Y., Jan. '18—25 Jan. '19.
- BUGBEE, J. M. (III) Corp., Sig. C. Pvt., Sig. C., 14 Feb. '18; Corp., Radio Sect., 1st Army, Sig. C., 16 Nov. '18. A. E. F., 26 July '18—20 July '19; Member, American School Detachment, University of Toulouse, Mch.—July '19. Meuse-Argonne Offensive, 25 Sept.—11 Nov. '18.
- BURGESS, K. A. (II) Ensign, U. S. N. Sea. 2cl., 11 Dec. '17; Ensign, 7 June '18. On U.S.S. Columbia in escort and convoy duty.
- BURKE, A. E. (VII) Pvt., F. A. Camp Devens, Mass., Nov. '17. A. E. F., with Btry. A, 301st F. A., in July '18, BURROWS, G. H., 2d Lt., Inf. Co. K, 3d Div., Camp Devens, Mass. in Nov. '18.
- BURTON, O. D. (V) Sgt. 1 cl., C. W. S. Pvt., Research Div., C. W. S., 24 Nov. '17; Sgt., 1 May '18; Sgt. 1 cl., 1 Oct. '18. Canister Research Unit, Gas Mask Research Sect., American University, Washington, D. C., 24 Nov. '17—Feb. '18; research work on carbon monoxide absorbent, Feb.—July '18; Asst. to Chief of Canister Research Unit, Aug.—Oct. '18; in full military control of large-scale field tests, and Asst. Liaison Officer between Defense and Offense Sections, Oct.—11 Nov. '18; compiled monograph correlating results of field tests, Nov. '18—14 Feb. '19. Slightly gassed, July '18.
- BUSHEE, R. J. (XI) Ensign, N. N. V. Sea., 6 Apr. '17; C. B. M., 1 July '18; Ensign, 13 Nov. '18. U.S.S. Nebraska, 9th Deck Div., 6 Apr. '17; S.S. Pearl Shell for Armed Guard Duty, 28 Sept. '17; St. Helena, Norfolk, Va., 1 Apr. '18; Officer Material School at Naval Operating Base, Hampton Roads, 1 July '18; U. S. Submarine Chaser No. 298, 13 Nov. '18; released at Mare Island, Calif., 8 July '19.
- BUTLER, A. S. (XIII) Pvt., F. A. Sect. 115, Anti-Aircraft Service, 5 June '17; transferred to F. A. Cent. Off. Tr. Sch., Camp Taylor, Ky., 10 Oct. '18.
- BUTLER, H. B. (V) Pvt., 1st cl., Q. M. C. Pvt., Inf., 15 Dec. '17; transferred Q. M. C., 29 Jan. '18. Co. G, 312th Inf. A. E. F., 16 Apr. '18—6 July '19; Butchery Co. No. 305; Q. M. Salvage Div., Tours.
- CALDWELL, S. H. (II) Ensign, C. E., U. S. N. R. F. Sea. 2 cl., 4 June '18; C. M. M., 15 Sept. '18; Machinist, 25 Feb. '19; Ensign, 25 May '19. In Boston and New York, 25 June—29 July '18. A. E. F., 1 Aug.—2 Sept. '18. U. S. Sept. '18—16 Feb. '19. A. E. F., 17 Feb.—1 May '19.
- CAMERON, E. J. (VIII) Pvt., M. C. Gen. Hosp. No. 13 (Harvard Unit) at Boulogne attached to B. E. F.
- CAMPBELL, T. J. (II) 1st Lt., A. S. A. Entered Service, 17 June '17; Cadet, Aviation Sect., Sig. R. C.; 1st Lt., 13 May '18. A. E. F., Oct. '17—Jan. '19; 8th Aviation Instruction Center, Italy, Oct. '17—June '18; Royal Air Force, 3d Aviation Instruction Center, June '18—Oct. '18; 41st Aero Sq., 5th Pursuit Group, Oct. '18—Jan. '19.
- CANNON, G. Y. (IV) 2d Lt., Inf. Pvt. 1 cl., 16 May '18; 2d Lt., 26 Aug. '18. 4th Off. Tr. Camp, Camp Devens, Mass., May '18; Camp Lee, Va., and Small Arms Firing School, Camp Perry, Ohio, June—Oct. '18; returned Camp Lee, Va., 9 Oct. '18—23 Dec. '18.
- CARPENTER, C. C. (I) Ensign, U. S. N. R. F. Enlisted, 5 Apr. '18; Sea. 2 cl., 11 June '18; C. B. M., 19 Aug. '18; Ensign, 17 Dec. '18. Stationed at Hingham, Mass., Wakefield Rifle Range, Bumkin Island and Commonwealth Pier, June—Aug. '18; Off. Tr. Sch., until 23 Dec. '18.
- CARR, P. W. (X) Pvt., C. W. S. Co. A, 1st Bn., Research Div., C. W. S., 20 Sept.—20 Dec. '18.
- CARTER, E. S. (II) 1st Lt., Engrs. Pvt., 19 Sept. '17; 2d Lt., 25 May '18; 1st Lt., Apr. '19. Camp Devens, Mass., Sept. '17; Gas Defense Plant, Astoria, L. I., Oct. '17 until spring '18; Co. B, 542d Engrs. (Cons.), 28 June '19.
- CARTER, J. W. (III) 1st Lt., F. A. A. E. F., Dec. '17—Aug. '18; with 135th F. A. attached French Army and 1st Corps Arty. Ordered to U. S. as Inst. in F. A., Aug. '18; in a hospital Sept. and Oct. '18; disch. Nov. '18. Champagne-Marne Defensive; (Château-Thierry) Aisne-Marne Offensive.
- CARY, F. W. (II) 2d Lt., A. S. Commissioned 26 Sept. '18. Enlisted in American Field Service, T. M. 526 Peloton C, 20 June—23 Nov. '17. A. E. F., 23 Nov. '17—29 Jan. '19; Civilian Employee, 23 Nov. '17—26 Sept. '18; Production and Maintenance Div., A. S.; Inst. in Aviation Mechanics, Bleriot Plant, Suresnes, Paris; Asst. Officer in charge Assembly Plant 1 A (De Haviland Assembly) and Liberty Flying Field, Romorantin, Jan. '18—Jan. '19.
- CASSIDY, J. E. (XV) Sgt. F. A. Sgt., Q. M. C. Detachment, Base Hospital, Camp Kearney, Calif., in Apr. '18; Off. Tr. Camp, Camp Taylor, Ky., in Aug. '18.
- CHAMBERLAIN, S. V. (IV) Pvt., Sn. C. Driver, S. S. U. 14-632, Amer. Field Service with French Army, 2 June '17. A. E. F., Sept. '17—2 Apr. '19. Champagne, June—July '17; Aisne, '17; Verdun Offensive, Aug. '17; Marquise Sector, '17; Champagne, Jan.—June '18; Aisne-Marne Offensive, July '18; Meuse-Argonne Offensive, Oct.—Nov. '18. (Croix de Guerre.) (Page 147.)
- CHASE, J. H. (I) 1st Lt., Engrs. Pvt., Engrs., 5 May '18; 2d Lt., 25 May; 1st Lt., 10 July. A. E. F., 27 June '18—11 June '19; transferred from 108th Engrs. to 318th Engrs., 18 Apr. '19. Meuse-Argonne Offensive.
- CHURCH, A. A. (VI) Electrician, U. S. N. R. F. In Service 10 Dec. '17. A. E. F., Sept.—Dec. '18, on convoy duty aboard U.S.S. Georgia.

REGISTER OF MILITARY RECORDS

- CLARK, D. S. (VI) Capt., Sig. C. Pvt., Off. Tr. Camp, 23 Aug. '17; 1st Lt., Sig. C., 8 Nov. '17; Capt., Feb. '19. Plattsburg Tr. Camp, 23 Aug. '17; Camp Vail, N. J., Nov. A. E. F., 13 Jan. '18—spring '19; Army Sig. Sch., Langres, France, Feb. '18; in charge of Radio Dept., Observers Sch., 2d Aviation Instruction Center, Tours, Mich.; Adj., Supply Officer, and Officer in Charge, Radio Dept., Observers Sch., May.
- CLARK, J. A. (VIII) Pvt., M. C. In Service 4 Nov. '18. Gen. Hosp. No. 35, West Baden, Ind. See Civilian Record.
- CLARK, J. L. (XV) Sgt., Inf. Pvt., 1st cl., 16 May '18; Corp., 16 July; Sgt., 20 Aug. 23d Co., 6th Bn., 151st Depot Brig., Camp Devens, Mass., May—4 Dec. '18. See Civilian Record.
- CLARKE, W. J. (II) Electrician 2cl., U. S. N. R. F. E. 3 cl., 24 Dec. '17; E. 2cl., Oct. '18. A. E. F., 25 Apr. '18—1 June '19; Submarine Chaser.
- CLARKSON, J. W. (XV) 2d Lt., A. S. Pvt. 1 cl., 19 Nov. '17; 2d Lt., 13 Mch. '18. School of Military Aeronautics, Austin, Texas, Dec. '17; Adjutant's School, Ohio State University, Feb. '18; Inst., Observer's School, Langley Field, Va., 14 Mch.—Sept. '18; course in Aerial Gunnery, Mount Clemens, Mich.; returned as Inst., Langley Field, and remained until 20 Dec. '18.
- CLOGHER, E. J. (VI) Pvt., A. S. 295th Aero Prov. Service Sq., Columbia University, New York City, in Nov. '18.
- COBB, COLLIER, JR. (I) Sgt., Engrs. Pvt., 12 Feb.; Sgt., 13 Mch. A. E. F., 10 Apr. '18—27 July '19 with Co. A, 42d Engrs.
- COCHRANE, E. L. (XIII) Lt., C. C., U. S. N. Outside Supt., Navy Yard, Philadelphia, Pa., in general charge of repairs and outfitting naval vessels, 12 Apr. '17—to date (22 Aug. '19).
- COLLIER, R. T. (I) 2d Lt., F. A. Pvt., May '17; Corp., July '17; Sgt., Nov. '17; Sgt. 1 cl., Jan. '18; 2d Lt., F. A., June '18. Co. B, 14th Engrs., May '17. A. E. F., June '17—May '19; transferred to F. A., June '18.
- COLLINS, E. P. (X) C. Q. M., U. S. N. R. F. (A.). In Service 28 Oct. '18. M. I. T. Ground School, 28 Oct. '18. transferred to Commonwealth Pier, Boston, Mass., 11 Nov. '18.
- COLLINS, H. E. (XV) 2d Lt., C. A. C. Pvt., 15 May '18; 2d Lt., 25 Sept. '18. 7th Co., Ft. Warren, Mass., May '18; transferred to 3d Training Co., C. A. C. Off. Tr. Sch., Ft. Monroe, Va., 4 July '18; Inst. of Gunnery, C. A. C. Sch., 25 Sept. '18—31 Nov. '18. (Page 45.)
- COLLINS, W. L. (VI) 2d Lt., A. S. R. C. Observer and Radio Operator, Ft. Sill, Okla., Sept. '18; Pvt., 295th Aero Prov. Service Sq., Columbia University, New York City, in Nov.; Advanced School of Wireless Telegraphy, Gerstner Field, La.; Disch. 14 Dec. '18.
- CONNETT, HAROLD (X) Capt., C. A. C. 2d Lt., 15 Aug. '17; 1st Lt., 26 Oct. '17; Capt., 22 June '18. Plattsburg, N. Y., 14 May '17; transferred to Hv. Arty. Tr. Camp, Ft. Monroe, Va., June. A. E. F., 6 Sept. '17—16 June '19; Hv. Arty. Sch., Sept.—27 Dec. '17; served with 7th Regt., C. A. C.; special duty at Troyes as Asst. Provost Marshal; Commanded Btry, M. 42d Regt. (formerly 7th Regt.); Engr. Officer, 182d Bn., 53d Arty.; Engr. Officer, 30th Arty. Brig., having charge of all A. E. F. railway guns; Courier to American Peace Commission, Dec. '18—June '19; in charge Courier Service in London until 7 Aug. '19. (Page 180.)
- COOPER, S. K. (II) Ensign, U. S. N. R. F. Served on Submarine Chaser No. 355.
- CORBETT, F. P. (VII) Acting Sgt., Q. M. C. Pvt., 1 Dec. '17; Pvt. 1 cl., 18 Feb. '18; Corp., Nov.; Acting Sgt., Dec. Camp Johnston, Fla., 19 Dec. '17—23 Mch. '19.
- COSTELLOE, W. H. (VI) Lt., Aviation Sect., Sig. R. C. Pvt., Engr. R. C., 13 Feb. '18; Pvt., Sig. C.; Pvt., A. S., Aug. '18; Lt., Aviation Sect., Sig. R. C., 11 Jan. '19. At M. I. T. taking course in Radio Communication, Feb.—June '18; transferred Govt. Radio School, College Park, Md., 13 June '18; Radio Cadet, Air Service School for Radio Officers, Columbia University, 20 Aug. '18; member of 8th Platoon, training at Post Field, Ft. Sill, Okla. and at Gerstner Field, Lake Charles, La., until 14 Dec. '18.
- COWARD, R. S. (II) 2d Lt., A. S. Commissioned, 4 Mch. '18; Res. Off. Tr. Camp, Plattsburg, 15 May '17; transferred School of Military Aeronautics, M. I. T., 14 Aug. '17; Kelly Field, Texas. A. E. F., 15 July '18—29 July '19; Aviation Training Center, Issoudun, 14 Aug.—28 Sept. '18; attached 1st Aero Sq. Meuse-Argonne Offensive, 1 Oct.—11 Nov. Army of Occupation.
- COYNE, H. J. (I) 2d Lt., F. A. Pvt., Inf., 21 Sept. '17; 2d Lt., F. A., 17 Aug. '18. With 301st Inf., Sept.—Nov. '17; Gas Defense Div., Nov. '17—Jan. '18; 6th Regt., F. A., Camp Taylor, Ky., Jan.—21 Dec. '18.
- CRAIGHEAD, P. B. (I) 2d Lt., A. S. A. Pvt., 1 cl. 19 Dec. '17; 2d Lt., (R. M. A.) A. S. A., 30 Aug. '18. Cornell University, Feb. '18; Mineola, N. Y., May; Souther Field, Americus, Ga., July; Wilbur Wright Field, Dayton, Ohio, Sept.; Payne Field, West Point, Miss., Oct. '18—Jan. '19.
- CREEDON, F. R. (I) 1st Lt., F. A. 2d Lt., F. A., 26 Feb. '18; 1st Lt., Ft. Leavenworth, Kan.; with 82d F. A. on Mexican Border for five months; Inst. in Gunnery, School of Fire, Ft. Sill, Okla.; disch. 18 Dec. '18.
- CROSBY, R. J. (II) Lt. (j. g.), U. S. A. Warrant Gunner, 14 Feb. '17; Ensign, U. S. N. R. F., 3 June '18; Ensign, U. S. N., 18 Sept. '18; Lt. (j. g.), 1 July '19. Served on U. S. New Mexico.
- CUMMINGS, S. R. (II) Sea., U. S. N. R. F., 8 Apr. '18, but not called to active service.
- CUSHING, DANIEL, (V) Maj., Aviation Sect., Sig. R. C. Capt., A. S., 1 Mch. '18; Maj., Aviation Sect., Sig. R. C., 26 Mch. '19. Bu. of Aircraft Production, 1 Mch. '18—2 May '19.
- CUTTS, G. B. (II) 2d Lt., A. S. Flying Cadet, Jan. '18; Gerstner Field, Lake Charles, La., in Nov. '18; Disch; Dec. '18.
- CYR, H. M. (X) Pvt., C. W. S. In Service 26 Aug. '18. Chemical Development Div., C. W. S.; Camp Jackson, S. C., Sept. '18; transferred to Prof. Lewis' "Emergency Squad" and worked on research and development of both offensive and defensive gas warfare until discharged in Jan. '19. See Civilian Record.

TECHNOLOGY'S WAR RECORD

- DAGNALL, C. H. (VI) 2d Lt., Sig. C. Pvt., Sig. C., June '18; 2d Lt., 7 Nov. '18. Enlisted Engr. Reserve Corps, 22 Jan. '18; Radio Course, M. I. T., Feb. '18; Sig. C., Radio School, College Park, Md., 14 June '18; 1st Co., Off. Tr. Bn., Camp Vail, N. J., Aug. '18—3 Dec. '18.
- DAMON, J. W. (XV) 2d Lt., Engrs. Pvt., 25 June '17; Corp., Sept. '17; 2d Lt., 5 July '18. A. E. F. Co. B, 101st Engrs.; with 26th Div. until 1 Mch. '18; attended 1st Army Candidates School, Engr. Sect., Ft. St. Meuge; 1st Corps, 1st Army Hq., Argonne. St. Die Sector; Meuse-Argonne Offensive.
- DANIELSON, K. M. (I) Pvt. 1 cl., Inf. Clerk and Typist, Co. E, 301st Inf., 76th Div., Sept. '17. A. E. F., 4 July '18—18 June '19; transferred from Co. E, 301st Inf. to Co. E, 164th Inf., then Hq. Detachment, Camp Pontanezen, Brest.
- D'ARCY, F. G., reported Corp., Engrs., A. E. F.,
- DAWSON, NORMAN (XI) 2d Lt., F. A. Pvt., 1 cl. 5 Jan. '18; Corp., 8 Apr.; Sgt., 16 Apr.; 2d Lt., 1 June '18. A. E. F., 2 May '18—19 June '19; 304th F. A.; Saumur Arty. School, 14 May '18; 3d F. A., 24 July '18.
- DE SALVO, LEOPOLD (II) Pvt., Inf. 151st Depot Brig., 4th Co., Camp Devens, Mass., in May '18; Co. D, 302 M. G. Bn., in June. Hqs. Troop, 3d Army Corps, A. E. F., in Sept.
- DESMOND, D. B. (XV) in Service 5—16 Oct. '17.
- DINKINS, P. M. (X) Pvt., C. W. S. Edgewood Arsenal, Md., Sept. '18; See Civilian Record.
- DIXON, E. S. (V) 2d Lt., C. A. C. Off. Tr. Camp, Ft. Monroe, Va., Aug. '18; 9th Co., Ft. Strong, Mass., in Jan. '19.
- DONNELLY, T. J., JR. (I) Ensign, U. S. N. C. M. M., U. S. N., 15 Nov. '17; Ensign, 30 Sept. '18. Inspector of Cons., Public Works Dept., Navy Yard, Boston, Mass., Apr. '18; U. S. Naval Academy, Annapolis, Md., 30 Sept. '18—Feb. '19. See Civilian Record.
- DOW, C. W. (V) Sgt., M. C. Pvt., M. C., 1 June '18; Sgt., 28 June '18. U. S. A. Auxiliary Laboratory No. 1, New York City; Army Laboratory School, New Haven, Conn., 16 Aug. '18; Laboratory, Port of Embarkation, Newport News, Va., in charge of Media and Sterilizing Dept., Feb. '19.
- DRAKE, A. F. (IV) Corp., Engrs. Co. B, 1st Bn., 79th Engrs., Camp Stuart, Va., in Mch. '19.
- DRURY, E. W. (IV) Pvt., 1 cl. Engrs. Pvt., 28 May '18; Pvt. 1 cl., July 18. With 472d Engrs., stationed at Washington, D. C., doing guard duty.
- DYER, H. A. (II) Capt., C. A. C. 44th Co., Southern N. Y., C. A. C. Ft. Totten, N. Y. in Nov. '17; 47th C. A. C. A. E. F., in Dec. '18.
- EALLES, M. A. L. (VI) 2d Lt., A. S. A. Pvt. 1st cl., Aviation Sect., Sig. R. C., 18 Feb. '18; 2d Lt., A. S. A. 24 July '18. School for Engr. Officers, M. I. T., 16 Mch. '18; Eberts Field, Ark., 29 June '18; Asst. Engr. Officer, Hq. Staff, Eberts Field; Detroit, Mich., doing special work on Liberty Motor and D. H. 4 Plane, Oct.—10 Dec. '18.
- EARLE, F. M. (XIII) Lt., C. C., U. S. N. Ship Supt., Boston, Navy Yard; converted Yacht Isabel to patrol boat; superintended building of U. S. Brazos, oil tanker; Outside Supt., Planning Supt., Asst. Shop Supt., and Docking Officer in the Hull Div.
- *EASTMAN, WILLIAM, JR. (II). See Roll of Honor (page 128).
- EHERT, G. L. (X) 1st Lt., Ord. Corps. A. E. F. in Apr. '18.
- EKWALL, G. O. (X) 2d Lt., Inf. Pvt., Plattsburg Camp, 22 July '18; 2d Lt., 16 Sept. '18. Inf. Repl. Troops, Camp Grant, Ill., until 30 Jan. '19.
- ELLIOTT, S. E., 1st Lt., A. S. Entered Service, 21 May '17; 1st Lt., 26 Sept. '17. A. E. F., 12 Nov. '17—4 Mch. '19; 15th Sq., 2d Pursuit Group, A. S. Toul Sector, 1 July—30 Sept. '18; Meuse-Argonne Offensive, 21 Sept.—11 Nov. '18.
- ELLIS, C. M. (IV) 2d Lt., F. A. R. C. Pvt. 1 cl., 15 July '18; 2d Lt., F. A. R. C., 18 Dec. '18. 3d Engr. Tr. Regt., Camp Humphreys, Va., 15 July '18; Candidate, F. A. Cent. Off. Tr. Sch., Camp Taylor, Ky., 15 Aug. '18—18 Dec. '18.
- ELLITHORP, J. S., JR. (V) 2d Lt., C. W. S. Pvt., C. W. S., 21 Nov. '18; Corp., 1 Jan. '19; Sgt. 1 cl., 15 May '19; 2d Lt., C. W. S., 11 Aug. '19. Stamford Plant, Edgewood Arsenal, Md., 21 Nov. '18—13 Dec. '19.
- *ELY, DINSMORE (IV). See Roll of Honor (pages 86, 92 and 162).
- ELZ, G. A. (VI) Pvt., Sig. C. Pvt., 31st Service Co., Sig. C., 3 June '18. Transferred to A. S. School for Radio Telephone Officers, Columbia University, New York City, 21 Aug. '18; Ft. Sill, Okla., Sept.—Oct. '18; Gerstner Field, Lake Charles, La., Nov.—Dec. '18.
- ENGELBRECHT, W. B. (X) Pvt. 1 cl., C. W. S. Astoria Detachment, 18 Feb. '18.
- ESTES, F. M. (V) Ensign, U. S. N. R. F. Sea. 1st cl., 9 June '17; Ensign, 12 Feb. '18. Boston Navy Yard, June '17; transferred to Harbor Patrol, U. S. S. Inca (Submarine Patrol 1212) July; Cadet School, Harvard University, 15 Sept.; U. S. S. Nevada, 12 Feb. '18; with Destroyer Force in Foreign Waters, June; U. S. S. Cummings, Brest, 16 July; U. S. Naval Headquarters, Brest, 23 Sept. '18; duty in Communication Office and Office of Code and Signal Sect. until 21 Aug. '19.
- ESTY, E. S. (XV) Lt. (j. g.), U. S. N. Ensign (T), U. S. N., 1 Dec. '17; Lt. (j. g.), 1 Jan. '19. 3d Reserve Officer Training Class, Annapolis, Md., served on U. S. S. Nevada, U. S. S. Leviathan, and U. S. S. Imperator. A. E. F., 14 Aug.—26 Dec. '18, on U. S. S. Nevada.
- EVELETH, F. C. (I) 2d Lt., F. A. Pvt. 1st cl., 15 May '18; 4th Off. Tr. Camp, F. A.; 2d Lt., F. A., 31 Aug. '18. 9th F. A., Ft. Sill, Okla., Aug. '18 to date (19 Aug. '19).

REGISTER OF MILITARY RECORDS

- FELSING, W. A. (V) Capt., C. W. S. 2d Lt., Ord. R. C., 21 Jan. '18; transferred to C. W. S., 18 July '18; Capt., C. W. S., 25 Oct. '18. Cleveland, Ohio, 21 Jan. '18; Edgewood Arsenal, Md., July—20 Dec. '18. Burned by mustard gas and spent thirty-nine days in hosp. at Edgewood Arsenal.
- FIELDS, E. S., JR. (I) 2d Lt., Engrs. Pvt., Inf., 14 Apr. '17; Corp., 7 June '17; Sgt., Inf., 4 Sept. '17; 2d Lt., Engrs., 16 May '18. Co. B, 19th Inf. A. E. F., 29 Aug. '18—26 Aug. '19; 534th Engrs.
- FISCHER, F. W. (I) Pvt., Inf. Entered Service, 30 Jan. '18. Co. 10, 166th Depot Brig., Camp Lewis, Wash. Disch. 21 Feb. '18, due to valvular heart disease. See Civilian Record.
- FISHER, W. P., JR. (X) 2d Lt., C. A. C. Pvt., C. A. C., 4 June '18; 2d Lt., 25 Sept. '18. Btry. F, 18th Arty., C. A. C., Ft. Monroe, Va., June—Sept. '18; San Francisco, Calif., Sept.—Jan. '19.
- FISK, H. H. (VI) 2d Lt., C. A. C. Pvt., 22 Oct. '18; 2d Lt., C. A. C., O. R. C., 6 Feb. '19. Jackson Barracks, New Orleans, La., Oct. '18; Off. Tr. Sch., Ft. Monroe, Va., Nov. '18—6 Feb. '19.
- FISKE, C. D. (II) M. M. 2 cl., U. S. N. R. F. Entered Service, 17 June '18; Hingham Naval Training Station, 27 June '18; Inspector Engr. Material, in charge of statistical work of Production Div., Bu. of Steam Engr., Boston, Mass., 19 July '18—7 Jan. '19.
- FITCH, H. W. (II) Corp., C. W. S. Pvt., 9 Apr. '18; Corp., 15 Sept. '18. Gas Defense Service, Sn. Corps, L. I. Laboratory, Apr. '18—5 Feb. '19. See Civilian Record. (Page 45.)
- FLINT, J. A. (II) Lt., (j. g.) U. S. N. R. F. Ensign, Bu. of Ord., U. S. N. R. F., 15 Dec. '17; Lt. (j. g.), 13 Sept. '18. In Washington, D. C., and Newport, R. I.; in charge of long range torpedo work during summer of '18.
- FOGARTY, T. S. (XV) Corp., C. W. S. Pvt., Ord. Corps, 15 Dec. '17; Corp., C. W. S., 1 July '18. At American University, Washington, D. C., working on development and testing of all kinds of gas masks and smoke protectors or filters.
- FOLSON, R. A. (XIV) 2d Lt., Sig. R. C. Pvt., 28 Aug. '18; 2d Lt., Sig. R. C., 17 Dec. '18. 31st Service Co., Sig. C., College Park, Md., Aug. '18; 3d Service Co., New Haven, Conn., Off. Tr. Sch., 13 Sept. '18; Inst., 15 Oct.—13 Dec. '18. See Civilian Record.
- FORD, K. L. (X) Ensign, U. S. N. R. F. Entered Service, Nov. '17; M. M. 2 cl., Jan. '18; Ensign, Feb. '19. U.S.S. Commonwealth; Pelham Bay Naval Tr. Station; Experiment Station, New London, Conn.; Navy Steam Engr. School, Stevens Institute of Technology, Hoboken, N. J., Aug. '18; Engr. Officer, U.S.S. Beaufort, Naval Collier, in southern waters, Cuba, Haiti and St. Thomas, and Norfolk, Va., Feb.—Aug. '19.
- FOSTER, S. M. (VI) Capt., F. A. 1st Lt., 12 May '17; Capt., 3 Mch. '19. A. E. F., Oct. '17—26 Apr. '19; Hq., 67th F. A. Brig., Div. Munitions Officer, 42d Div., 26 Apr. '18—8 Apr. '19. Champagne-Marne Defensive, 14 July '18; St. Mihiel Offensive, Sept. '18; Meuse-Argonne Offensive, Oct. and Nov. '18; Army of Occupation.
- FOSTER, W. C. (VI) 2d Lt., A. S. A. In Training, Army Military Aero. Sch., Princeton, N. J., Park Field, Memphis, Tenn., and other fields, 10 Aug. '17—Aug. '18; Pilot Inst., combat work and aerial gunnery Selfridge Field, Mt. Clemment, Mich., Aug.—26 Dec. '18.
- FOWLER, W. H. (XV) Sea., Mine Force, U. S. N. R. F. Entered Service, 26 June '17. M. G. Co., Newport, R. I., 15 Oct. '17; U.S.S. Canonicus, Mine Layer, Mine Sq. No. 1, U. S. Atlantic Fleet, Dec. '17. A. E. F., May '18—Jan. '19, Planting Northern Mine Barrage, North Sea.
- FRANKLIN, S. H. (X) 1st Lt., C. A. C. 2d Tr. Co., Ft. Monroe, Va. in Feb. '18; 10th Co., Ft. McKinley, Ore., in Apr. '18; 72d Arty., Ft. Preble, Ore., in July '18. A. E. F., 6 Aug. '18—2 June '19 with 72d C. A. C.
- FRAZIER, W. S. (IV) 2d Lt., A. S. Pvt. 1 cl., 23 Oct. '17; 2d Lt., 15 Aug. '18. School of Military Aeronautics, M. I. T.; Ground School, University of Illinois, Champaign; Camp Dick, Texas; completed flying training and Inst., Eberts Field, Ark.; Hoboken, N. J., 11 Nov.—19 Dec. '18.
- *FRIERY, J. W. (I). See Roll of Honor (page 119).
- FULLER, C. C. (XIV) 2d Lt., F. A. R. C. Pvt., Engr., R. C. 31 Jan. '18; 2d Lt., F. A. R. C., 18 Dec. '18. Transferred from Engrs. to Ord. Dept. and assigned Engr. of Tests, Pittsburgh Dist., supervising testing of steel munitions at Pittsburgh steel mills, 7 May '18; F. A. Repl., Troops, 9 Sept.—18 Dec. '18.
- FULLER, J. R. (XIV) Sgt., C. W. S. Co. L, 304th Inf., 19 Sept. '17; transferred to Gas Defense Service, Astoria, L. I., 6 Oct. '17; transferred to C. W. S., Gas Defense Div., July '18; disch. 5 Feb. '19.
- *GAILLAC, E. B. (II). See Roll of Honor (page 106).
- GAY, D. M. (VII) Sgt., M. C. Base Hosp. Detachment, Camp Devens, Mass., 14 Dec. '17.
- GILES, E. P. (IV) (XIII) Pvt., Engrs. R. C., 17 Jan. '18—June '18. See Civilian Record.
- GLEASON, H. L. (VI) Ensign, U. S. N. R. F. Naval Aviation Detachment, M. I. T.; Motor Inspector of flying boats, Curtiss Plant, Buffalo, N. Y., in Feb. '18.
- GOLDSMITH, H. J. (III) Pvt., M. C. Entered Service, 21 Aug. '17. A. E. F., Sept. '17—Mch. '19; Orderly, U. S. Base Hosp., No. 12, Comiers, France.
- GOODMAN, AARON (VI) Ensign, U. S. N. R. F. Entered Service, July '18; C. M. M., Nov. '18; Warrant Machinist, Apr. '19; Ensign, June '19.
- GORE, E. W. (II) 2d Lt., F. A. Pvt., 21 Sept. '17; Sgt., 18 Nov. '17; 2d Lt., 12 July '18. Btry. F, 301st F. A.; N. C. O. School, 24 Sept. '17; 3d Off. Tr. Camp, Camp Devens, Mass., 5 Jan. '18. A. E. F., 16 Apr. '19—5 Mch. '19; Arty. School, Saumur, France, 15 May '18; Hv. Arty. School, Angers, 1 Aug. '18; Orientation Course, Hv. Arty. School, 25 Sept. '18; Inst., Organization and Training Center No. 2, Limoges, 1 Nov. '18; Btry. B, 66th Regt., C. A. C., 3 Dec. '18.

TECHNOLOGY'S WAR RECORD

- GOSS, D. C. (IV) 2d Lt., F. A. Pvt., Inf., 15 May '18; transferred F. A., June '18. Camp Devens, Mass. May '18; Camp Taylor, Ky., 28 June '18; Motor School, Camp Travis, Texas, with 25th T. M. Btry., and Camp Stanley, Texas, with 15th Am. Tn. F. A., 31 Aug. '18—23 Dec. '18.
- GOULD, G. S. (II) Pvt. 1 cl., C. A. C. Pvt., 1 cl., 7th Co., C. A. C., Ft. Monroe, Va., 21 Sept. '18—Jan. '19. *GOULD, P. W. (II) See Roll of Honor (page 108).
- GREENLY, B. M., JR. (X) Ensign, U. S. N. (A). Entered Service, 23 May '17; commissioned, 19 Feb. '18. Norfolk, Va., in Jan. '18. A. E. F., 26 Feb.—15 Dec. '18; trained in France and operated French flying boats, then sent to Italy and qualified as Italian Military Aviator; transferred to Northern Bombing Group, U. S. N.
- GROSSMAN, A. P. (III) Pvt. 1 cl., Q. M. C. Pvt., Inf., 4 Aug. '18; transferred Q. M. C.; Pvt. 1 cl., 23 Oct. '18. Depot Brig., Inf., Camp Syracuse, N. Y., Aug. '18; Cons. Div., Q. M. C., Camp Merritt, N. J., Oct. '18—15 May '19.
- GUILBERT, H. M. (II) Capt., A. S. 1st Lt., A. S., 5 June '17; Capt., 18 Mch. '19. A. E. F., 15 Oct. '17—10 June '19; 91st Aero Sq., 22 Feb. '18—3 June '19. Toul Sector, 24 May—12 Sept. '18; St. Mihiel Offensive, 12-23 Sept. '18; Meuse-Argonne Offensive, 24 Sept.—11 Nov.; Army of Occupation, 21 Nov.—16 Apr. '19. Croix de Guerre with Palm. (Pages 148 and 201.)
- GUIRANOVICH, A. J., JR. (I) enlisted in Engr. R. C., Feb. '18. Disch., June '18. See Civilian Record.
- GUSTAVESON, J. W. (VI) 2d Lt., C. A. R. C. Pvt., Engrs., 25 Mch. '18; 2d Lt., C. A. R. C., 26 June '18; Enlisted, Engr. R. C., 16 Jan. '18; Ft. Monroe, Va., 25 Mch. '18; transferred 4th C. A. Tr. Camp, 8 Apr. '18; 15th Co., Coast Defense of Chesapeake Bay, 15 July; Hq. Co., 50th C. A. C., 30 Sept. '18. A. E. F., 7 Oct. '18—14 Feb. '19.
- HAERTLEIN, ALBERT (I) 1st Lt., Engrs. Pvt. 1 cl., 4 May '18; 2d Lt. (N. A.), 30 July; 2d Lt., 10 July '18; 1st Lt. (T), 10 July '18. A. E. F., 25 Sept. '18—25 June '19; C. O., Co. B, 546th Engrs. Meuse-Argonne Offensive, 25 Oct.—11 Nov. '18.
- HAFNER, V. L. S. (IV) Ensign, C. C. U. S. N. Plane Inspector, Naval Aviation Detachment, M. I. T., Jan. '18; Asst. Naval Constructor, New York City, Mch. '19.
- HAIGH, H. R. (VI) 2d Lt., C. A. C. Commissioned, 27 Mch. '18. 3d Off. Tr. Camp, Ft. Monroe, Va., 1 Dec. '17—27 Mch. '18; Warren, Boston, Mass., 15 Apr. '18; Anti-Aircraft School, Ft. Monroe, Va., 3 June '18; 4th Anti-Aircraft Bn., Camp Eustis, Va., 15 July '18; 5th Bn., Ft. Williams, Portland, Me., 19 Aug. A. E. F., 20 Oct.—25 Dec. '18; Anti-Aircraft School, Arnouville.
- HALL, I. G., JR. (II) 1st Lt., M. T. C. Pvt., Service des Antos, French Army, 25 June '17; Brigadier, 19 July '17; Marschal des Logis, 1 Sept. '17; Pvt., Reserve Mallet and M. T. C., U. S. A., 1 Oct. '17; 2d Lt., 2 May '18; 1st Lt., 8 May '19. In France, 25 June '17—19 July '19. Chemin des Dames, 17-20 Oct. '17; Cambrai, 25 Nov.—5 June '18; Montdidier-Noyon Defensive, 9-13 July '18; Champagne-Marne Defensive, 15 July '18; Aisne-Marne Offensive, 18 July—6 Aug. '18; Somme Offensive, 8 Aug.—17 Sept. '18. Gassed at Brainsne, 28 May '18. Company received five citations, three from 6th French Army, one from 1st French Army, and one from 3d French Army. (Pages 86 and 287.)
- HAMILTON, N. R. (VIII) Capt., Cav. 2d Lt., 25 Aug. '17; 1st Lt., 19 Mch. '18; Capt., 25 July '18. Ft. Leavenworth, Kan., 2 Sept. '17; Port of Embarkation, Newport News, Va., 18 Nov. '17; Ft. Myer, Va., 8 Oct. '18—22 Jan. '19.
- HANCOCK, G. L. (IV) 1st Lt., A. S. A. Pvt. 1 cl., Aviation Sect., Sig. C., 19 June '17; 1st Lt., A. S., 6 Jan. '18. Ft. Sill, Okla., 8 Feb. '18; Asst. Officer in Charge of Flying, 15 Mch. '18; Officer in Charge, 6 Sept. '18—23 Jan. '19.
- HANLEY, J. M. (I) 2d Lt., C. A. C. Pvt., C. A. C., 14 Oct. '18. 2d Lt., C. A. R. C., 31 Jan. '19. C. A. C. Off. Tr. Sch., Ft. Monroe, Va., 14 Oct. '18—31 Jan. '19.
- HANSBERRY, T. W. (I) reported promoted from 2d Lt. to 1st Lt., C. A. C., 9 Aug. '17; reported Pvt., 6th Inf., Hq. Co., A. E. F., 10 May '18.
- HANSCOM, C. D. (XIII) Sea, 2 cl., U. S. N. R. F. Airplane Inspectors' School, U. S. N., M. I. T., in charge of all work in airplane design, stress analysis, and details of cons., Dec. '17—Oct. '18; Aeronautical Engr. School, M. I. T.; Inst. in Aeronautics, Wind Tunnel Expert, U. S. A. Research Div., A. S., assisting in and supervising tests of models, and conducting an independent research on wing design, Oct. '18—Feb. '19. (Page 270.)
- HARDY, A. C. (VIII) 2d Lt., A. S. Pvt., 11 Dec. '17; 2d Lt., 9 Aug. '18. Photographic Branch of A. S., 11 Dec. '17. C. O. of 23d Aerial Photographic Sect., 13 Aug. '18. A. E. F., 20 Oct.—7 Jan. '19.
- HARRALL, E. R. (I) 1st Lt., Engrs. 2d Lt., Engrs., 8 Aug. '18; 1st Lt. (T) 13 Oct. '18; Prov. 1st Lt., 7 Feb. '19. With replacement troops until Dec. '18; at school until May '15, '19; 5th Engrs., May '19 to date (21 Aug. '19). See Civilian Record.
- HARRINGTON, E. D., (VI) Ensign, U. S. N. (A), 5 June '18. 16th Aero Sq.; Inst. in Gunnery and Bombing, U. S. N. Aviation Detachment, Seattle, Wash.; in charge of Gunnery and Bombing, U. S. N. Air Station, San Diego, Calif.
- HART, C. D., 2d Lt., M. R. C. Sgt., M. C., 91st Sn. Sq., 12th Div., Camp Devens, Mass.
- HARTLEY, W. E. (X) 1st Sgt., C. W. S. Development Div. Disch., 19 Dec. '18.
- HATCH, H. W. (IV) Pvt., Gas Defense Service. Pvt., 151st Depot Brig., Camp Devens, Mass., 4 Oct. '17; transferred to Gas Defense Service, 19 Oct. '17; Aero Detachment, Philadelphia, Pa., until 18 Dec. '18.

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- HATHAWAY, M. D., JR. (XV) 2d Lt., A. S. A. Aviation Tr. Depot, Ft. Wayne, Detroit, Mich., in Feb. '18; Garden City, Air Service Dep., L. I. Disch., 11 Dec. '18.
- HATTEN, E. R. (I) Ensign, U. S. N. Cadet School, 1st Naval Dist., 1 June '17—1 Oct. '17; Ex. Officer, U. S. Submarine Chaser, 10 Jan. '18. A. E. F., 1 May '18—30 June '19; C. O., U. S. Submarine Chaser 110, 1 June '18; Unit Comdr. of three sub-chasers, 1 Sept.; C. O., U. S. Submarine Chaser 178 and made Div. Comdr. of six chasers, 1 Oct. '18. Five engagements with German submarines in Irish Sea. Possible credit for two submarines. Commended by Admiral Sims and mentioned in Admiralty Dispatches.
- HAZELET, C. P. (I) 2d Lt., Engrs. Co. F, 1st Repl. Regt. Engrs. Camp Humphreys, Va., 19 Aug.—18 Dec. '18.
- HELLIER, E. W., 1st Lt., Royal Flying Corps (British). Cadet, Royal Flying Corps, 3 Sept. '17; 2d Lt., 18 Jan. '18; 1st Lt., 1 Apr. '18. Inst. at Ft. Worth, Texas, England, and Canada.
- HELDRICH, C. S. (I) Sgt., F. A. Entered Service, 24 June '18; Corp., Inf., 1 Aug. '18; Sgt., 1 Oct. '18; transferred F. A., Nov. '18. 12th Co., 3d Bn., Depot Brig., Camp Devens, Mass.; 51st Tr. Btry., F. A. Cent. Off. Tr. Sch., Camp Taylor, Ky.; Disch., 2 Dec. '18.
- HERFURTH, W. R. (XIII) Ensign, U. S. N. (A). Ensign, Naval Aviation, Engr. Office, 6 Dec. '17; Miami, Fla., 1 Apr. '18; installed first Liberty Motor in a Navy Plane on Pacific Coast, San Diego, Calif., 9 Sept. '18. See Civilian Record.
- HERZSTEIN, JOSEPH (VII) Sgt., 1 cl., M. C. Pvt., 26 July '18; Pvt. 1 cl., 1 Aug. '18; Sgt., 16 Sept. '18; Sgt. 1 cl., 12 Nov. Divisional Hq., Camp Humphreys, Va., in charge of medical statistics of the camp, and doing epidemiological work until 18 Dec. '18. See Civilian Record.
- HEWITT, P. A. (V) Sgt., M. C. Entered Service, 19 Sept. '18; Sgt., 2 Dec. '18. Yale Army Laboratory School, New Haven, Conn., 21 Sept. '18; Rockefeller Institute, New York City, 1 Nov. '18; Laboratory, Greenhut Hospital, New York City, 17 Dec. '18; Laboratory, Grand Central Palace, New York City, 23 Feb. '19; Laboratory, Base Hosp., Camp Merritt, N. J., 20 June—1 July '19.
- HEYL, R. C., JR. (VI) 2d Lt., F. A. Pvt., 1 cl., 2 Jan. '18; Sgt., Apr.; 2d Lt., 1 June '18. 3d Off. Tr. Camp, Camp Upton, L. I., 4 Jan. '18; Hq. Co., 304th F. A., 20 Apr. '18. A. E. F., 23 Apr. '18—1 Jan. '19; 9th Anti-Aircraft Sector.
- HICKMAN, E. T. (II) Ensign, U. S. N. R. F. (A). C. Q. M., M. I. T. Naval Aviation Unit, 18 Oct. '17; Ensign, U. S. N. R. F., 19 July '18. At Curtiss Aeroplane and Motor Corp., Buffalo, N. Y., supervising inspection, and running tests and experiments for Navy, Mch. '18—Feb. '19.
- HILBERT, W. E. (XD) Lt. (j. g.), U. S. N. Naval Academy, Annapolis, Md., in Dec. '18. U.S.S. Arizona at Guantanamo, Cuba, in Mch. '19.
- HINCKLEY, N. C. (XV) 2d Lt., A. S. Pvt., 26 Apr. '17; 2d Lt., 6 Apr. '18. Ground School, M. I. T., 14 Aug. '17; Kelly Field, Texas, 22 Dec. '17; Camp Dick, Texas, 6 Apr. '18; Inst. of Ground Officers, Ellington Field, until 6 May '19.
- HOLDEN, E. V. (IV) Sgt., Engrs. A. E. F. Co. E, 14th Engrs. (Ry.), in Feb. '18.
- *HOLMES, J. H., JR. (IV). See Roll of Honor (pages 94, 133 and 179).
- HOLT, W. R. (X) 2d Lt., C. W. S., 19 Oct. '18. See Civilian Record.
- HOWARD, A. F. (V) Ensign, U. S. N. (A). Entered Service, 4 Dec. '17; Inst. in Motor Engines, Naval Aviation Detachment at M. I. T., '18; Miami and Pensacola, Dec. '18—May '19.
- HOWE, J. C. (XV) 2d Lt., Engr. R. C. Pvt. 1 cl., Off. Tr. Camp, 9 Jan. '18; Corp., Engrs., 8 Aug.; Sgt., 31 Oct.; 2d Lt., O. R. C., 11 Dec. '18. Res. Off. Tr. Camp, Camp Lee, Va., 9 Jan. '18; 3d Tr. Regt., Camp Humphreys, Va., 8 Aug.; Engr. Off. Tr. Camp, Camp Humphreys, Va., 1 Oct.; Student Inst., Engr. Off. Tr. Camp, Camp Humphreys, 31 Oct. '18. Disch., 11 Dec. '18.
- HOWLETT, W. M. (XV) Lt. (j. g.), U. S. N. (A). Ensign, June '18; Lt. (j. g.), Apr. '19. Ground School, M. I. T. 12 Apr. '17; Hampton Roads, Va., Nov. '17; flying instruction at Pensacola, Dec. '17; convoy and patrol duty in New York Harbor, June '18—June '19.
- HUCKINS, E. W. (XV) 2d Lt., Engrs. Pvt., C. A. C., 3 Aug. '18; 2d Lt., Engrs. A. E. F., 23 Sept. '18—25 Aug. '19; with 310th and 6th Engrs.; attended Saumur Arty. School. Army of Occupation.
- HUDDER, E. W. (II) C. M., 1 cl., U. S. N. (A). C. M., 2 cl., 18 Dec. '17; C. M., 1 cl., 15 June '18. A. E. F., 17 Jan. '18—15 Jan. '19; U. S. Naval Aviation Station, Aghada, Ireland.
- HUGO, O. G. (II) Cadet, A. S. Entered Service, 23 Nov. '17; Cadet, School of Military Aeronautics, Austin, Texas, 20 Apr. '18; Camp Dick, Texas, 20 July; Rich Field, Texas, Sept.—Dec. '18.
- HULSEMAN, G. D. (VI) Pvt., Engrs. Pvt., Co. G, 1st Repl. Engrs., 14 Aug. '18. Transferred to Co. 1, Engr., Off. Sch., Camp Humphreys, Va., 15 Sept.—27 Nov. '18.
- HUTCHINGS, G. B., JR. (II) Ensign, U. S. N. R. F. (A). Sea. 2 cl., 10 Dec. '17; C. Q. M., U. S. N. R. F. (A), 1 Jan. '18; Ensign, 4 Mch. '18. Naval Detachment, M. I. T., 10 Dec. '17; Inst. in Gunnery and Bombing, and in charge Motor Dept., Naval Detachment, M. I. T.; Naval Air Station, Miami, Fla., 23 Sept. '18; Naval Air Station, Pensacola, Fla., 8 Dec. '18—3 Apr. '19.
- IMHOFF, W. E. (II) Mr. Elec., Aviation Sect., Sig. C. Pvt., Aviation Sect., Sig. C., 7 Dec. '17; Mr. Elec., 1 July '18. A. E. F., 25 Jan.—Mch. '19; 176th Pursuit Sq. In Scotland, Jan.—Sept. '18; England, Sept. and Oct.; France, Oct.—Mch. '19.

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- IRWIN, J. C., JR. (X) 1st Lt., Inf. 2d Lt., Cav. R. C., 15 Aug. '17; 2d Lt., Inf. (N. A.), 15 Aug. '17; 1st Lt., Inf. (N. A.), 12 June '18. Mass. Cav., N. G., 6 Apr. '17; Off. Tr. Camp, Plattsburg, N. Y., May—Aug. '17; 302d M. G. Bn., 29 Aug. '17. A. E. F., 8 July '18—28 Feb. '19; 2d Corps School, Oct. '18; 147th M. G. Bn., 9 Nov. '18.
- JERMAIN, H. F. (XIV) Ensign, U. S. N. R. F. (A.). U. S. Naval Aviation Detachment, M. I. T.; Pensacola, Fla., in Feb. '19.
- JOHNSON, G. E. (XV) Capt., C. A. C. 1st Lt., 12 Oct. '17; Capt., 25 Jan. '18. Entered Service, 9 Aug. '17. A. E. F., 10 Dec. '17—12 June '19; Bn. L, 51st Arty. Hq., 38th Arty. Brig. Toul Sector (Seicheprey), (Aprémont), (Bernecourt), Verdun Sectors. (Page 201.)
- JOHNSON, R. L. (II) 2d Lt., A. S. Sgt., 1 Aug. '17; 2d Lt., 15 Jan. '18. Kelly Field, Texas, with three months detached service in San Francisco, 1 Aug. '17—16 Dec. '18.
- JONES, B. F. (V) Bn. Sgt. Maj., Inf. Pvt., 21 June '18; Bn. Sgt. Maj., 22 July '18. 13th Bn., 153d Depot Brig., Camp Dix, N. J., 21 June '18—12 June '19.
- JONES, J. L. (XV) 2d Lt., F. A. A. E. F., Bn. D, 101st F. A. in Jan. '18; Candidate, F. A. Sch. of Instruction in Feb. '18.
- JONES, W. A. (I) 2d Lt., Engrs. Camp Humphreys, Va., 22 July—22 Nov. '18; 218th Engrs., Camp Travis, Texas, 26 Nov. '18—26 Feb. '19. See Civilian Record. (Page 45.)
- JOSLIN, A. W. (I) 2d Lt., C. A. C. Pvt., 18 June '18; 2d Lt., 25 Sept. '18. Fifth C. A. C. Tr. Camp, 6 July—25 Sept. '18; Inst. in Orientation, C. A. C. Off. Tr. Sch., Ft. Monroe, Va., 25 Sept.—3 Dec. '18.
- JUDGE, C. E. (VI) Ensign, U. S. N. R. F. Sea., U. S. N. R. F., 4 May '17; Cox., 4 Oct. '17; Ensign, 8 Feb. '18; Ensign (T), U. S. N., 8 June '19. U. S. Submarine Chaser 254; U. S. Naval Academy, Annapolis, Md.; U. S. Submarine School, New London, Conn., 1 July '18—7 Dec. '18; U. S. H-9, San Pedro, Calif., 1 Jan. '19—14 June '19. Qualified for command of submarine torpedo boat, 14 June '19.
- JUSTHEIM, C. I. (I) Lt. (j. g.), U. S. N. R. F. M. M. 2 cl., 6 Dec. '17; C. M. M., 1 Mch. '18; Ensign (D), U. S. N. R. F., 10 Aug. '18; Lt. (j. g.), (D), U. S. N. R. F., 21 June '19. In U. S., 2 Jan. '18—17 Apr. '18. A. E. F., 17 Apr.—17 June '18. U. S. 17 June—24 Aug. '18. A. E. F., 24 Aug. '18—10 June '19. (Page 230.)
- KAISER, K. H. (IV) Ensign, U. S. N. R. F. Sea., 4 Dec. '17; C. Q. M., 1 Jan. '18; Ensign, Class 5, 19 Mch. '18. Curtiss Aeroplane and Motor Corp., Buffalo, N. Y., Feb. '18—Apr. '19; Goodyear Tire and Rubber Co., Akron, Ohio, Apr. '19—Oct. '18.
- KALER, H. V. (I) Ensign, U. S. N. R. F. M. M. 2 cl., U. S. N. R. F., 20 June '17; C. M. M., 23 Sept. '17; Ensign, 2 Oct. '17. Stationed at Bumkin Island, Boston Harbor, and Office of Naval Operations, Washington, D. C.; in charge of some repair work on German interned ships, Boston, Mass.; duty with Naval Overseas Transportation System, Montreal, Can.; temporary duty at New Orleans, La., Key West, Fla., Washington, D. C., Norfolk, Va., Charleston, S. C., Pensacola, and Miami, Fla. Placed on inactive list, 2 Jan. '19.
- KEELER, H. Y. (XV) 2d Lt., C. A. C. Candidate, 2d Tr. Co., Ft. Monroe, Va., in Dec. '17; 30th Co., Ft. Standish, Mass., in Apr. '18. A. E. F., Sept. '18—May '19; 73d C. A. C.
- KELLEY, J. A. (X) Sgt., C. W. S. Entered Service, 22 Jan. '18. Assisted in developing methods of mfr. of mustard gas, di-phosgene, and ethylene, Cleveland, Ohio, Apr.—Dec. '18.
- KELLY, T. P. (X) Sgt., C. W. S. Pvt., Engrs., Jan. '18; transferred to C. W. S., Aug. '18; Sgt., Oct. '18. Worked on development of mustard gas for large scale production, Jan. '18—16 Dec. '18.
- KENNARD, J. W. (VI) 2d Lt., Marine Corps. Pvt., 6 June '18; 2d Lt., 15 Aug. '18. 100th Co., U. S. Marine Corps, Cuba, 5 Nov. '18—Mch. 20, '19; in operations against revolutionists in Haiti, 31 Mch. '19—30 July '19.
- KENNARD, R. P. (VI) in Ord. Dept., May '18.
- KENNEDY, P. H. (II) 2d Lt., Engrs., Pvt., 26 Jan. '18; Corp., 17 Mch. '18; Sgt., 18 Apr. '18; 2d Lt., 31 May '18. A. E. F., 21 July '18—5 Jan. '19, with Co. F, 56th Engrs.
- KENT, E. R. (VI) Pvt., Engrs., 2 Oct. '17. Co. E, 2d Btry., 20th Engrs. Transferred to Engr. Detachment, Dept. of Construction and Transportation, 21 May '18; transferred to Co. F, 33d Engrs., 10 Sept. '18. A. E. F., 26 Nov. '17—17 Apr. '19. As result of influenza twice and pneumonia, in Walter Reed Hospital, Washington, D. C., Apr.—Oct. '19.
- KILGORE, H. D. (I) M. M. 2 cl., U. S. N. R. F. Sea. 2 cl., 2 July '18; M. M. 2 cl., 1 Oct. '19. Inspector for Public Works Dept., Navy Yard, on construction of new buildings at Bumkin Island, Boston, 10 Aug.—Sept. '18, and at U. S. Naval Hospital, Chelsea, Mass., until 23 Jan. '19.
- KINGSBURY, C. L. (XV) Corp., Engr. In Service, 12 June '17. A. E. F., 30 Sept. '17—31 Apr. '19, with 101st Engrs. Chemin des Dames, Toul Sector (Seicheprey), Aisne-Marne Offensive (Château-Thierry), St. Mihiel Offensive; Meuse-Argonne Offensive (Verdun). Croix de Guerre. (Page 148.)
- KLINE, F. L. (IV) 2d Lt., M. T. C. Pvt.; Sgt.; Sgt., 1st cl.; 2d Lt. Served in France, 4 July '17—4 Nov. '18; Reserve Mallet, American Field Service; transferred, A. E. F., M. T. C., 1 Oct. '17. M. T. Co. 367; Inst., M. T. C. Sch. No. 1 at Decize; Inst. in U. S. until 10 Dec. '18. Chemin des Dames, '17; Cambrai, '17; Marne Defensive, Somme Offensive. (Page 87.)
- KNOWLAND, T. M. (X) 2d Lt., C. W. S. Pvt., Engrs., Oct. '17; disch. to work in Bu. of Mines; 2d Lt., C. W. S., 14 Sept. '18. Served in various plants and on war gas investigations in U. S. until 12 Feb. '19. See Civilian Record.

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- KRASNOFF, NATHANIEL (VI) Lt. (j. g.), U. S. N. Cadet-Engr., U. S. Coast Guard, 27 Jan. '18; Ensign, U. S. N., 20 June '18; Lt. (j. g.), U. S. N., 21 Sept. '18. U. S. S. Vermont, July—Dec. '18; U. S. S. Madawaska, Dec. '18—May '19; U. S. S. Cummings, May '19 to date (22 Aug. '18).
- LACEY, H. R. (I) M. M. 2 cl., U. S. N. R. F. Sea 2 cl., 4 Apr. '18; M. M. 2 cl., 1 Oct. '18. Attached Bu. Yards and Docks and detailed to Charlestown Navy Yard after training at Hingham, Mass., and Bumkin Island, Boston, for seven weeks.
- LANDIS, M. N. (III) Pvt., F. A. 4th Co., 1st Tr. Bn., 161st Depot Brig., Camp Grant, Ill., in Apr. '18. A. E. F., Hq. Co., 124th F. A., assigned to reconnaissance; attended Sorbonne, Paris, after armistice.
- LANE, F. A. (VI) 2d Lt., A. S. Pvt., Engr. R. C., 13 Feb. '18; Pvt., Sig. C., 12 June '18; Cadet, A. S., 20 Aug. '18; 2d Lt., Aviation Sect., Sig. R. C., 20 Dec. '18. College Park, Md., 12 June '18; Columbia University, 20 Aug.; Advanced School for Radio Telegraph Officers, Post Field, Ft. Sill, Okla., 22 Oct. '18; A. S. Advanced School for Radio Telephone Officers, Gerstner Field, La., 28 Nov. '18—21 Dec. '18.
- LARNER, H. B. (VI) 1st Lt., U. S. Public Health Service. Scientific Asst. (rank of 2d Lt.), U. S. Public Health Service, 13 June '18; Asst. Surgeon (rank of 1st Lt.), 13 Dec. '18. Extra-cantonment sanitation in various southern states, 13 June '18—Aug. 1, '19; Chief, Div. of Food Control and General Sanitation at Public Health Service Station, Florence, Ala., 1 Jan.—1 July '19.
- LASKEY, W. G. (VI) Ensign, U. S. N. R. F. E. 1 cl., 10 Dec. '17; C. P. O., July '18; Ensign (E.), 15 Aug. '18. Inst., Radio Telephone Sch., New London, Conn.; installation of radio telephones in seaplanes, Norfolk, Va., 1 Feb.—16 Sept. '18. A. E. F., 29 Sept.—12 Dec. '18, radio installation on aircraft, U. S. N. Air Station, Killingholme, Eng.
- LEONARD, J. T. (XV) 1st Lt., Inf. At Plattsburg, N. Y., May '17; reported with 303d Inf., A. E. F. Disch., 24 Feb. '19.
- LEONARD, R. S. (I) Corp., Inf., 1 Sept. '18.
- LIPPITT, C. W., JR. (VI) Sgt., F. A. Pvt., 17 Apr. '17; Sgt., Aug. '17. A. E. F., 9 Oct. '17—13 July '19, with 103d Regt., F. A., 26th Div. Toul Sector (Seicheprey), (Xivray-Marvoisin), Richecourt, Aisne-Marne Offensive (Château-Thierry).
- LITCHFIELD, A. C. (XV) Lt. (j. g.), U. S. N. R. F. (A.). Entered Service, 4 Dec. '17; Ensign, U. S. N. R. F., 27 July '18; Lt. (j. g.), 24 Mch. '19. In charge of power plant installation in flying boats building for Navy Dept., Standard Aircraft Corp., Elizabeth, N. J., 12 Mch. '18—20 Jan. '19. Inactive duty, 26 Apr. '19.
- LITTLE, E. N. (VI) 2d Lt., Aviation, Sect., Sig. R. C., Pvt., Engr. R. C., 19 Jan. '18; active service, 6 June '18; transferred A. S., 19 Aug. '18; 2d Lt., Aviation Sect., Sig. R. C., 21 Dec. '18. A. S. School for Radio Officers, Columbia University; A. S. School for Radio Officers, Post Field, Ft. Sill, Okla., 19 Oct. '18; A. S. Advanced School for Radio Officers, Gerstner Field, La., 28 Nov. '18—21 Dec. '18.
- LOHMEYER, WILLIAM, JR. (I) Capt., Engrs. In Service, 20 Oct. '17. A. E. F., 29 Apr. '18—11 Dec. '18 with 4th Engrs. Aisne-Marne Offensive, 18 July '18. Severely wounded in action Chezy-en-Orxais near Château-Thierry, 19 July '18.
- LONG, C. C. (VI) 1st Lt., Engrs. 2d Lt., Engrs., 26 Aug. '17; 1st Lt., 6 Oct. '18. Plattsburg Camp, 25 Aug. '17; American University Tr. Camp, Washington, D. C., Oct. '17; Office of Chief of Engrs. designing and purchasing electrical equipment for use in France, 11 Nov. '17; joined Co. A, 38th Engrs., 20 Dec. '17. A. E. F., 27 Feb. '18—18 June '19; Co. A in charge of electrical work in Base Sect. No. 2; C. O., Co. B, 38th Engrs. returning to U. S.
- LONG, H. W. (IV) Capt., A. S. A. Cadet, Aviation Sect., Sig. C., 28 Sept. '17; 1st Lt., 23 Mch. '18; Capt., Apr. '19. In France, 1 Mch. '17—July '19; Ambulance Driver, American Field Service, with French Army, 1 Mch.—Sept. '17; flying training in A. E. F., Sept. '17—Aug. '18; with 93d Pursuit Sq., 3d Pursuit Group, St. Mihiel and Argonne Fronts. Offensive at Verdun, Aug. '17; St. Mihiel and Meuse-Argonne Offensives. Croix de Guerre for ambulance work.
- LONGLEY, J. E. (I) 2d Lt., Engrs. Enlisted, 29 Jan. '18; active duty, 23 May '18; commissioned, 30 July '18. Camp Lee, Va.; assigned 79th Engrs., Camp Leach, D. C., until 2 Dec. '18.
- LONGLEY, J. R., 2d Lt., Engrs., 30 July '18. Enlisted, Engr. R. C., 4 Feb. '18; 4th Engr. Off. Tr. Camp, Camp Lee, Va., 25 May '18; 5th Engr. Tr. Regt., Camp Humphreys, Va., 12 Aug. '18; 547th Engrs., Camp Humphreys, Va., 23 Sept. '18; 78th Engrs., Camp Leach, D. C., 16 Oct.—2 Dec. '18.
- LOOMIS, P. W. (VI) 1st Lt., C. A. C. 2d Lt., C. A. R. C., 27 Mch. '18; Provisional 2d Lt., C. A. C., 1 May '18; 1st Lt. (T.), C. A. C., 22 June '18. 3d Off. Tr. Camp, Ft. Monroe, Va., 1 Dec. '17—27 Mch. '18; 10th Co., Ft. Banks, Coast Defenses of Boston, 15 Apr.—7 July '18; 47th C. A. C., Camp Eustis, Va., 9 July '18—13 Oct. '18. A. E. F., 26 Oct. '18—June '19; with 47th C. A. C. until 4 Dec. '18; F. A. Repl. Regt., 5 Dec. '18—29 Dec. '18; Co. D, 109th Inf., 28th Div., 12 Jan. '19—22 Apr. '19; 10th M. G. Bn., 8th Div., 25 Apr. '19—24 May '19; Camp Dix, N. J., 24 June '19—to date (15 Aug. '19).
- LORD, W. M. B. (XV) Pvt., Ord. Corps, 23 Jan. '18. Inspector of construction of mechanical equipment in Power House and "Process" Building, Sheffield (Ala.) Detachment, Nitrate Div.
- LORENZ, O. C. (IV) 2d Lt., Inf. Pvt. 1 cl., 16 May '18; 2d Lt., 15 Oct. '18. 4th Off. Tr. Camp, 76th Div., Camp Devens, Mass.; Camp Lee, Va., and 153d Depot Brig., Camp Dix, N. J.
- LUFKIN, GARLAND (XV) 2d Lt., Engrs. Pvt., 7 May '17; Corp., Apr. '18; 2d Lt., 19 July '18. A. E. F., 8 Oct. '17—22 June '19; Co. C, 101st Engrs., 26th Div., until 1 July '18; Bu. of Fire Prevention, Hq., S. O. S., July '18—22 June '19. Toul Sector, 1 Apr.—1 July '18. (Page 223.)
- LYONS, S. C. (V) Pvt., Sig. C. Pvt., 46th Serv. Co., Radio Div., Sig. C., 21 July—26 Dec. '18.

TECHNOLOGY'S WAR RECORD

- MACALISTER, A. G., JR. (VI) 2d Lt., Inf. Pvt., Off. Tr. Sch., 5 Jan. '18; Pvt., 1 cl.; Corp., 17 Apr.; 2d Lt. 15 July. 3d Off. Tr. Camp, Camp Upton, N. Y., 5 Jan. '18; 307th Inf., 26th Mch. A. E. F. 6 Apr. '18—5 Jan. '19; 307th Inf.; 7th Inf., 2d Div., 15 July; attached Technical Bd., Office of General Purchasing Agent, Paris. Lorraine Front. (Page 220.)
- McASKELL, DONALD (IV) 2d Lt., Engrs. 5th and 7th Tr. Regiments, Camp Humphreys, Va.; Co. B, 218th Engrs., Camp Travis, Texas, in Jan. '19; disch., Camp Upton, N. Y., 31 Jan. '19.
- McCANN, R. B. (XIII) Candidate, 3d Inf. Off. Tr. Camp, Camp Devens, Mass., in Apr. '18.
- McCARTHY, E. B. (II) Capt., C. A. C. 2d Lt., C. A. C., 9 Aug. '17; 1st Lt., 9 Aug. '17; Capt., 5 Mch. '18; Ft. Monroe, Va., 3 Sept. '17. A. E. F., 12 Dec. '17—24 June '18; attended 2d Hv. Arty. School at Mailly-le-Camp, France; 1st Amer. Howitzer Regt., 31 Mch. '18. St. Mihiel Salient, 26 Apr.—9 June '18; Toul Sector. Inst., Hv. Arty., Ft. Monroe, Va., July '18—6 June '19; Coast Defense of Chesapeake Bay, June '19 to date (16 Oct. '19).
- McCAUSLAND, J. W. (II) Ensign, U. S. N. R. F. C. Q. M. (A.), 9 Dec. '17; Ensign, 20 Aug. '18. Ground School training at M. I. T.; stationed at Burgess Plant, Marblehead, Mass., and Buffalo, N. Y. Transferred to Washington, D. C., Sept. '18.
- McCLELLAN, J. L. (V) Sgt., M. C. Pvt., M. C., 29 Apr. '18; Sgt., June '18. Rockefeller Institute, New York City, 29 Apr.—15 Aug. '18; Yale Army Laboratory School, New Haven, Conn., 15 Aug.—31 Jan. '19.
- McCLURE, N. F. (VII) Pvt. 1 cl., M. R. C. Entered Service, 12 Nov. '17. 73d C. A. C., Ft. Warren, Mass., Nov. '17. A. E. F., 19 Sept. '18—1 July '19; Railroad Artillery Camp No. 2, Haussimont (Marne); gave dental treatment to various batteries on Verdun Front; transferred Dental Infirmary, Brest, 13 Dec. '18.
- McDILL, B. M. (XI) Capt., Cav. 2d Lt., 26 Oct. '17; 1st Lt., 5 Nov. '17; Capt., 6 May '19. Cav., Student Officers School, Ft. Leavenworth, Kan. 9th M. G. Bn. A. E. F., 2 Apr. '18—18 July '19. Aisne Defensive (Chemin des Dames and N. E. of Rheims); Champagne-Marne Defensive; Aisne-Marne Offensive; Vesle River Operation; St. Mihiel Offensive; Meuse-Argonne Offensive. Army Citation. Divisional Citation. (Page 175.)
- McDONALD, W. F. (I) Pvt., Engrs. Pvt., Co. C, 33d Engrs., 23 Mch. '18. A. E. F., 28 June '18—12 July '19.
- McFARLAND, D. M. (X) Pvt., Ord. Corps. Pvt., Nitrate Div., Ord. Dept., 16 May '18. Stationed at Muscle Shoals, Ala., 22 May '18—8 Feb. '19.
- McGREENERY, P. A. (II) Ensign, U. S. N. R. F. M. M. 2 cl., 4 June '18; C. M. M., 1 Aug. '18; Machinist 5 Oct. '18; Ensign, 23 Jan. '19. On supply ships U.S.S. Westpoint and U.S.S. Pasadena running from U. S. to France. See Civilian Record.
- McGREGORY, S. A. (I) 1st Lt., Engrs. Pvt. 1 cl., 29 Jan. '18; 2d Lt., 31 July '18; 1st Lt., 13 May '19. 4th Engr. Off. Tr. Camp, 29 Jan. '18; transferred Camp Humphreys, Va., 16 Aug. '18. A. E. F., 30 Sept. '18—28 June '19; C. O., Casual Co. No. 1, doing construction work around St. Nazaire; acted as supply and Mess Officer for company and Asst. to Chief Engr. in charge Road Dept., Base Sect. No. 1; transferred Co. B, 137 Engrs., 19 Nov. '18; injured and sent to Base Hosp. No. 101, 23 May '19.
- McIVOR, C. C. (VI) Lt. (j. g.), U. S. N. R. F. on U.S.S. C-1.
- McKEON, J. J., Pvt., A. S. School of Military Aeronautics, Princeton University; Garden City, Long Island 4 June '18. A. E. F., in England, 15 July—5 Dec. '18, 314th Aero Sq.
- McLAUGHLIN, C. P. (II) Ensign, U. S. N. M. M. 2 cl., 4 June '18; C. M. M., 1 Aug. '18; Ensign (Engr.), 13 Mch. '19. Entered U. S. N. Steam Engr. School, June '18; assigned U.S.S. Western Chief. A. E. F., Oct. '18—30 June '19.
- McLAUGHLIN, H. C. (IV) Sgt., Engrs. Entered Service, 22 Jan. '18. Sgt., Engr. R. C. 2d Regt., Camp Humphreys, Va., until Mch. '19.
- McLEOD, W. R. (XV) 1st Lt., Inf. Pvt., 20 Sept. '17; transferred Gas Defense Service, 10 Oct. '17; 2d Lt. 5 June '18; 1st Lt., 21 Oct. '18. Off. Tr. Sch., Camp Devens, Mass., 5 Jan. '18; Camp Gordon, Ga., 1 May '18; Camp Pike, Ark., 22 July '18; Tank Co., Camp Polk, N. C., 5 Oct. '18; Camp Merritt, N. J., 28 Jan.—24 Sept. '19.
- McNALLY, E. M. (II) Lt. (j. g.), U. S. N. R. F. (A.). Ensign, 20 Mch. '18; Lt. (j. g.), 14 Mch. '19. Naval Aviation Detachment, M. I. T., 10 Dec. '17; Inspector of Engr. Material (Aeronautics) under Inspector of Engr. Material, U. S. N., in charge of aeronautical inspection for Cincinnati Dist., 25 Mch.—24 June '19.
- McNARY, H. L. (XV) Corp., Inf. Corp., Inf. Personnel, Camp Upton, N. Y., 29 Aug. '18—5 Dec. '18. See Civilian Record.
- McVICKAR, LANSING (I) 1st Lt., F. A. Pvt., June '16; 2d Lt., F. A. R. C., 11 May '18; 2d Lt., F. A., 29 Sept. '17; 1st Lt., 16 Nov. '18. Pvt., Btry. A, 1st Mass. F. A. on Mexican Border; Plattsburg, N. Y., in May '18. A. E. F., 12 Sept. '17—17 May '19; attached 7th F. A. Ansanville Sector; Toul Sector; Montdidier-Noyon Defensive (Cantigny Sector); Aisne-Marne Offensive; St. Mihiel Offensive; Meuse-Argonne Offensive. Wounded, 18 July '18. Divisional Citation, 18 Dec. '18; Distinguished Service Cross. (Pages 135, 179 and 189.)
- MACHECA, G. M. (II) Ensign, U. S. N. R. F. Asst. to Officer in Charge of Torpedo Sect., Bu. of Ord., Navy Dept., Washington, D. C., 22 July '18—7 July '19.
- *MACKAY, R. A. (II). See Roll of Honor (pages 96 and 179).
- MAHONY, R. G. (II) C. M. M., U. S. N. R. F. Sea. 2 cl., U. S. N. R. F., 9 July '18; C. M. M., Oct. '18. In Engr. Dept., U. S. N., First Naval Dist., for six months. See Civilian Record.

REGISTER OF MILITARY RECORDS

- MALLEY, G. F. (I) 2d Lt., Engrs. Pvt. 1 cl., 25 May '18; 2d Lt., 30 July '18. Assigned 2d Engr. Tr. Regt., Camp Humphreys, Va., 1 Aug.; 3d Engr. Tr. Regt., Camp Humphreys, 23 Aug.; Bayonet Inst., 24 Aug.; transferred with 220th Engrs. to Camp Sevier, S. C., in charge bridge cons.; Regl. Athletic Officer, Officer in Charge of School of Drafting; Judge Advocate of General Court Martial. 1 Mch. '19. Disch., 19 Mch. '19.
- MANN, SAMUEL (VI) 2d Lt., A. S., 11 July '18, attached 275th Aero Sq.
- MANTER, E. M. (II) M. M. 1 cl., U. S. N. R. F. (A.). Lds. M. M., 11 Dec. '17; M. M. 2 cl., 1 Feb. '18; M. M. 1 cl., 1 Oct. '18. U. S. Naval Air Station, Pensacola, Fla. A. E. F., 15 Feb.—11 Dec. '18, stationed at Paullac and U. S. N. Air Station, Montchic.
- MARKHAM, J. R. (II) Capt., C. A. C. 31st Co., Coast Defense of Narragansett Bay, Ft. Getty, R. I., in Jan. '18. A. E. F., Btry. D, 6th Anti-Aircraft Bn. in Oct. '18; Central Baggage Office, Gievres, in May '19.
- MARSH, A. J. (IV) Pvt., A. S. School of Aerial Photography, Co. 3, Kodak Park, Rochester, N. Y.
- MARSHALL, L. P. (XV) Lt. (j. g.), U. S. N. R. F. (A.). Ensign, 10 Aug. '18; Lt. (j. g.), 1 Jan. '19. Entered Service, 11 Dec. '17; Ground School, M. I. T., Mch.—May '18; preliminary training, Bay Shore, L. I., May—June; Gunnery Pilot Inst., U. S. Naval Air Station, Pensacola, Fla., June '18—Feb. '19.
- MARTIN, G. R. (III) 2d Lt., C. A. C. Entered Service, 30 Apr. '17; 2d Lt., 1 Aug. '18. Aviation Sect., Sig. C., 30 Apr. '17; Arty. Observer; transferred F. A., Camp Stanley, Texas. A. E. F., 23 Apr. '18—May '19; Saumur Arty. School; Forward Observer for French railway gun. Wounded in Aug. '18 and sent to hospital at Angers, and to Nice before being invalided home. Somme Offensive. Cited for Croix de Guerre.
- *MAY, J. deG. (X). See Roll of Honor (page 100).
- MEAD, E. A. (X) 1st Lt., Inf. 2d Lt., 15 May '17; 1st Lt., 13 Aug. '18. 47th U. S. Inf. A. E. F., May '18—May '19; served with 4th Div., except for five months in a hospital at Bordeaux. Aisne-Marne Offensive. Wounded, 29 July '18.
- MEANS, L. M. (XV) 2d Lt., A. S. A. Enlisted, 17 Aug. '17; 2d Lt., 15 June '18. M. I. T. Ground School, 17 Nov. '17; Aviation Cadet, Princeton Ground School, 8 Jan. '18; Aviation Concentration Camp, Camp Dick, Dallas, Texas, 14 Feb.; Flying Cadet, Kelly Field, Texas, 3 Apr.; Hazelhurst Field, 29 Apr.; Camp Dick, Texas, 2 July; Aviation Pursuit Training, Gerstner Field, La.; Rockwell Field; U. S. A. School Aeronautical Engr. and Design, M. I. T., 5 Oct. '18—30 Jan. '19.
- MERRICK, B. A. (VI) 2d Lt., A. S., Sig. C. Entered Service, 4 Sept. '17; Pursuit Pilot and Aerial Gunnery Inst., July '18—9 Jan. '19.
- MILLER, ALAN (VII) Junior Watch Officer, U. S. N. R. F. Q. M., 2 cl., 14 Apr. '17; Acting C. Q. M., U. S. S. Ophir, 5 Sept. '18; Junior Watch Officer, U. S. S. Ophir, 16 Oct. '18. Six months in hospital due to accident. Disch., 10 Feb. '19.
- MILLER, A. B. (XIV) Pvt., C. W. S. Pvt., Development Div., C. W. S., 1 Nov. '18; secret post, Willoughby, Ohio, working on new poison gas, 4 Nov.; Camp Sherman, Ohio, 5-14 Dec. '18.
- MILLER, R. P. (II) Lt. (j. g.), U. S. N. R. F. (A.). Sea 2 cl., 3 Dec. '17; C. Q. M., 1 Jan. '18; Ensign, 15 May '18; Lt. (j. g.), 24 June '19. Student on airplane inspection, Keyport, N. J., Feb. '18; in charge of power plant inspection on H-S 2-L flying boats, College Point, N. Y.; Power Plant Inspector, N-C flying boats, Garden City and Rockaway, L. I., under Inspector of Engr. Material, U. S. N. (A.). (Page 244.)
- MILLIKEN, J. R. (XV) Lt., Aviation Sect., Sig. C. A. E. F., 2d Aviation Instruction Center in Feb. '18; Base Sect. No. 1, Beaumont Detachment in June and Aug.
- MOFFATT, E. H. (VI) Gunner, Canadian F. A. Junior Summer Camp, M. I. T. '17; Gunner 85th Btry., Canadian F. A., 3 Apr. '18; served in Asiatic Russia during winter of '18—'19.
- MONROE, W. P. (VI) Cadet, A. S. Air Service School for Radio Officers, New York City, 31 Oct.—27 Nov. '18. See Civilian Record.
- MONTGOMERY, D. H. (XV) 1st Lt., A. S. 2d Lt., 25 June '17; 1st Lt., 1 Aug. '18. A. E. F., Feb. '18—Feb. '19, with 12th Aero Sq., doing corps sq. work of contact patrol, corps photography and reconnaissance; two months with B. E. F., on Armies Sector. Toul, Baccarat, Lunéville, Château-Thierry, Belfort Sectors.
- MOORE, F. R., reported Pvt., Marine Corps.
- MOORE, W. A., JR. (IV) 1st Lt., C. A. C. Enlisted, 11 May '17; 2d Lt., C. A. C., 15 Aug. '17; 1st Lt., 7 Mch. '18. 1st Tr. Camp, Ft. Howard, Md. A. E. F., '18—'19; 4th Trench Mortar Bn., 90th Div.; Army of Occupation.
- MORAN, F. A. (I) 2d Lt., 2d Lt., Ft. Leavenworth, Kan., 26 Nov. '17. A. E. F., 26 May '18—13 May '19 with 19th F. A., 5th Div.
- MORRILL, H. B. (XV) Ensign, U. S. N. R. F. (A.). Commissioned, 22 Oct. '18. Ambulance Driver, American Field Service with French Army, 18 Dec. '16—7 June '17. A. E. F., 9 Mch. '18—25 Aug. '19 in 3d Naval Dist. Western Front with French Army; Verdun; Champagne-Marne Defensive; Somme Offensive; Meuse-Argonne Offensive.
- MOYLAN, L. J. (XV) Corp. M. T. C. Service Park Unit 465. Boston, Mass., 1 Sept.—26 Oct.; Atlanta, Georgia, 30 Oct.—6 Nov.; Baltimore, Md., 10 Nov.—1 Mch. '19.
- MUMFORD, A. R. (XIV) Sea., U. S. N. R. F. In Service, 22 Apr. '18. Hull Div. Navy Yard, Charlestown, Mass. Owing to poor eyesight unable to enter any active branch. See Civilian Record.
- MURPHY, D. B. (VI) Ensign, U. S. N. R. F. (A.). Aviation Tr. Sch., Hampton Roads, Va. A. E. F., Apr. '18—'19; on the coast of Lincolnshire, scouting for submarines. Supposed to have sunk a submarine.

TECHNOLOGY'S WAR RECORD

- MURRAY, A. F. (VI) 1st Lt., A. S. A. Pvt., 26 Mch. '18; 1st Lt., 11 Oct. '18. School of Military Aeronautics, M. I. T., 10 June '18; transferred to School Military Aeronautics, Cornell University, 6 Sept. '18; disch., 16 Dec. '18. See Civilian Record.
- MURRAY, G. S. (XIII) Lt. (j. g.), U. S. N. R. F. (A.) Class 5. C. Q. M. (A.), 3 Jan. '18; Ensign, 24 Apr. '18; Lt. (j. g.), 1 Oct. '19. Naval Aviation Detachment, M. I. T.; Bu. of Steam Engineering Div. of Aeronautics, assigned to study of air plane propeller designs with a representative of the British Admiralty; in charge of all propeller design, cons. and testing of experimental propellers, Dec. '18—Oct. '19.
- NANGLE, C. J. (X) Ensign, U. S. N. R. F. (A.). Entered Service, 23 Feb. '18; Naval Station, Hingham, Mass.; Naval Aviation Detachment, M. I. T., Mch.—June '18; Naval Air Station, Miami, Fla.; Inst. in flying, Pensacola, Fla.; Inactive List, Mch. '19.
- NELSON, O. A. (II) 2d Lt., C. A. C. Pvt., 14 June '18; 2d Lt., 25 Sept. '18. Ft. Warren, Mass., 14 June '18; 5th Off. Tr. Camp, Ft. Monroe, Va., 6 July '18; in command of men taking Motor Transportation Course, Ft. Monroe; disch., 20 Feb. '19.
- NELSON, WILLIAM (XIII) Lt., C. C., U. S. N. Ensign, 2 Sept. '11; Lt. (j. g.), June '17; Lt., Oct. '17; Navy Yard, Philadelphia, Pa., in construction work. Abroad in Aug. '14.
- NEWTON, E. M. (XV) 1st Lt., 5 Feb. '19. 2d Off. Tr. Camp, Ft. Monroe, Va., 15 Oct. '17; 71st C. A. C. A. E. F., 30 July '18—23 Jan. '20.
- NICHOLS, HALL (I) 1st Lt., Engrs. 2d Lt., 30 July '18; 1st Lt., 5 Nov. '18. Entered Service, 20 Mch. '18; 4th Engr. Off. Tr. Camp, Camp Lee, Va., 30 June '18; Repl. Troops, Camp Humphreys, Va., 13 Aug. '18; 210th Engrs., 30 Sept. '18—5 Mch. '19.
- NIGHTINGALE, W. E. (I) Ensign, U. S. N. R. F. (A.). Naval Aviation Detachment, M. I. T.; Student Flight Officer, U. S. N. Air Service in Oct. '18; teaching flying at Pensacola, Fla.; Disch., Mch. '19.
- NORTON, J. T. (VIII) Gunnery Sgt. Aviation Sect. Marine Corps. Entered Service, 15 Aug. '18; Naval Aviation Ground School, 1 Oct. '18; Marine Flying Field, Miami, Fla., 10 Dec. '18—1 Mch. '19.
- NUTE, A. D. (X) Sgt., C. W. S. Pvt., Inf., 21 July '18; Sgt., C. W. S., Nov. '18. Cleveland, Ohio, 7 Sept. '18; Willoughby, Ohio, 9 Sept. '18—10 Apr. '19.
- OBERT, A. A. (X) 1st Lt., Engrs. Pvt., Inf., 29 Oct. '17; Corp., 1 Nov. '17; Sgt., 11 Jan. '18; Sgt., Engrs., 1 May '18; 2d Lt., 16 May '18; 1st Lt., 9 Aug. '18; 1st Lt., O. R. C., Engr. Sect., 29 Mch. '19. 34th Co., 9th Tr. Bn., 151st Depot Brig., Camp Devens, Mass., 29 Oct. '17; Musketry School of Arms, Camp Devens, Mass., 29 Oct. '17; Musketry School of Arms, Camp Devens, Feb. '18; transferred to 4th Engr. Off. Tr. Camp, Camp Lee, Va., 3 May '18; disch. to accept commission in Engrs.; Asst. Regt. Personnel Adj., 4th Engr. Tr. Regt., Camp Humphreys, Va., 25 May '18; Regt. Personnel Adj., 28 July '18; Asst. Camp Personnel Adj., Ft. Harrison, Ind., in charge of organization of Engr. Ry. Troops, 10 Sept. '18; Acting Camp Personnel Adj., 20 Dec. '18—8 Jan. '19.
- O'BRIEN, R. L. (XI) 2d Lt., A. S. A. U. S. Marine Corps, Paris Island, S. C., May—Sept. '17. Transferred A. S., M. I. T. Ground School, 8 Jan. '18; flying training in Texas and Park Field, Memphis, Tenn., Aug. '18—Feb. '19.
- O'DONNELL, H. F., 1st Lt., C. A. C. Candidate, 2d Off. Tr. Sch., Ft. Monroe, Va., 1 Dec. '17; 1st Lt., C. A. C., 3 July '18. Coast Defense of Boston, 27 Mch. '18; Anti-Aircraft School, Ft. Monroe, 1 June—5 July '18; 4th Anti-Aircraft Bn., 15 July—25 Sept. '18; Provost Guard, Camp Eustis, Va., 1 Oct. '18—17 June '19.
- OTIS, J. P. (VI) 2d Lt., Sig. C. Pvt., 12 June '18; 2d Lt., Jan. '19. Sig. C. Radio School, College Park, Md., and Camp Vail, N. J.
- OWEN, F. E. (I) 2d Lt., F. A., Dec. '18. Cent. Off. Tr. Sch., Camp Taylor, Ky., Aug.—Dec. '18.
- PARKER, J. A. (VI) 2d Lt., Inf. Pvt., 1 Apr. '18; Sgt., 1 June; 2d Lt., 13 July. Off. Tr. Sch., Camp Upton, N. Y., 5 Jan. '18; Hq. Co., 308th Inf., 1 Apr. A. E. F., 19 Apr. '18—17 Apr. '19; Co. L, 306th Inf., 13 July. Baccarat Sector; Vesle River; Oise-Aisne Offensive; Meuse-Argonne Offensive. Gassed in action at St. Juvin, 13 Oct. '18.
- PARKINSON, D. B. (IV) Flying Cadet, A. S. School of Military Aeronautics, Berkeley, Calif., 21 Jan. '18; transferred to March Field, Riverside, Calif., 1 Sept. '18. See Civilian Record.
- *PARSONS, A. M. (XI). See Roll of Honor (page 101).
- PEERS, F. W. (IV) 2d Lt., Sn. C., Pvt., U. S. Army Ambulance Service, 9 June '18; Pvt., Sn. C., Apr. '18; 2d Lt., 7 Oct. '18. U. S. Army Ambulance Service, Allentown, Pa., 9 June '17; transferred to Army Medical School, Washington, D. C., Apr. '18; Yale Army Laboratory School, 7 Oct. '18; volunteered to be subject for experimentation regarding influenza; Base Hosp., Ft. Sill, Okla., 28 Dec. '18—18 Jan. '19. (Page 252.)
- PETER, W. W. (Sp.) Acting Director, Dept. of Citizenship, Army Educational Commission, Y. M. C. A., in Feb. '19; in Chinese Dept., Y. M. C. A., Chinese Labor Corps, Paris, in May '19.
- PHILBRICK, F. B. Ensign (T.), U. S. N. Warrant Gunner (E.), U. S. N. R. F., 28 Jan. '18; Ensign, U. S. N. R. F., 7 June '18; Ensign (T.), U. S. N., 15 Sept. '18. Entered Service, 25 Jan. '18; 4th Reserve Officers' Class. U. S. Naval Academy, Annapolis, Md.; U. S. S. Delaware, 15 Sept.—15 Dec. '18.
- PICKETT, E. R. (VII) Sgt., M. C. Pvt., 13 June '17; Corp., 5 Apr. '18; Sgt., 15 Sept. '18. Base Hosp. No. 5, A. E. F., 11 July '17—22 June '19; U. S. Mobile Hosp. No. 6, 16 Sept. '18; Ambulance Co. No. 159, 115th Sn. Tr., 27 Jan. '19. Meuse-Argonne Offensive, 26 Sept.—11 Nov. '18.
- PIERCE, G. R. (XV) 1st Lt., Aviation Sect., Sig. C. Regimental Staff, Camp Dick, Texas, in Apr. '18; Hq. Staff, Camp Dick, Texas, until 13 Jan. '19.

REGISTER OF MILITARY RECORDS

- PIERCE, MARVIN (I) 1st Lt., Engrs. 2d Lt., 26 May '18; 1st Lt., 11 Sept. '18. Entered Service, 19 Jan. '18; Washington Barracks, D. C., June '18. A. E. F., 25 Sept. '18—20 Apr. '19; Bn. Comdr., Knotty Ash Camp, Liverpool, Eng.
- PINKERTON, HENRY (VII) Corp., M. C. Entered Service, 13 June '17. A. E. F., 12 July '17—30 Apr. '19; U. S. Base Hosp. No. 5 attached to British Army.
- PINKHAM, B. O. (II) 2d Lt., C. W. S. Pvt., Inf., 4 Oct. '17; transferred Sn. C., 29 Oct. '17; Sgt., 8 Jan. '18; transferred to C. W. S., July '18; 2d Lt., C. W. S., 5 Sept. '18.
- POPE, A. W., JR. (II) Ensign, U. S. N. R. F. (A). C. P. O., Naval Aviation Detachment, M. I. T., 28 Jan. '18; Ensign, 30 Apr. '18. Bu. of Steam Engr., Washington, D. C., 29 Mch. '18; Aero Engine Test Laboratory, Washington, D. C., 13 Dec. '18.
- PORTER, G. H. (X) Sgt. 1 cl., C. W. S. Pvt., 16 Mch. '18; Pvt., 1 cl., June '18; Sgt., Sept. '18; Sgt. 1 cl., Nov. '18. Development Div., C. W. S., Cleveland, Ohio, 25 Mch.—12 Dec. '18.
- POTE, K. E. (II) Sgt. 1 cl., M. T. C. Pvt., 1 Oct. '17; Sgt. 1 cl., Dec. '18. Reserve Mallet with French Army, 1 July '17—1 Oct. '17. A. E. F., 1 Oct. '17—18 June '19. Chemin des Dames, Oct. '17; Cambrai Offensive, Nov. '17; Somme Defensive, Apr. '18; Aisne Defensive; Montdidier-Noyon Defensive; Champagne-Marne Defensive; Aisne-Marne Offensive.
- POTEAT, J. R. (VI) Ensign, U. S. N. R. F. Sea. 2 cl., 26 Mch. '18; C. E., 1 May '18; Ensign, 13 Sept. '18. Experimental Station, New London, Conn., 1 May '18; Nahant Experimental Station, Nahant, Mass., 5 June; New London, 1 Jan.—22 Mch. '19.
- PURVES, J. C. (I) Pvt., 1 cl., Engrs. 304th Engrs., 3 Nov. '17; transferred on indefinite furlough to complete course, 1 July '18; Engr. Off. Tr. Sch., 26 Nov. '18—11 Dec. '18.
- READ, C. S. (II) 2d Lt., F. A. Corp., 11 Nov. '17; 2d Lt., 31 Aug. '18. 301st Inf., Camp Devens, Mass., 7 Sept. '17; 301st Sup. Tn., 15 Oct. '17; Cent. Off. Tr. Sch., Camp Taylor, Ky., 5 May '18; F. A. Repl. Depot, Camp Jackson, S. C., 7 Sept. '17; School of Fire, Ft. Sill, Okla., 15 Oct.—11 Dec. '18.
- READ, M. M. (VI) Capt., C. A. C. 2d Lt., C. A. C., 26 Oct. '17; 1st Lt., June '18; Capt., 19 Oct. '18. Ft. Monroe, Va., Oct. '17—30 Mch. '18; Ft. Warren and Ft. Standish, Mass., 15 May '18—10 Jan. '19; Ft. Amador, C. Z., 28 Mch. '19.
- REED, D. A., JR. (IV) Sgt., M. T. C., 1 Nov. '17. Member, Tech Unit, American Field Service, 26 June '17; Reserve Mallet attached French Army, 5 July '17; assigned Sect. T. M. 526 of Reserve Mallet; transferred A. E. F., 1 Oct. '17; M. T. C., 1 Oct.—22 Mch. '19; Asst. to Director, Tech Bu. American University Union in Europe, Paris until 18 July. Chemin des Dames with French Army, Summer '17; eight engagements in American service. (Pages 84 and 87.)
- REID, KENNETH (IV) Lt. (j. g.), U. S. N., 16 Dec. '18. C. C., U. S. N., Portsmouth Navy Yard, N. H. See Civilian Record.
- REYCROFT, A. G. (III) Pvt. 1 cl., Engrs. 318th Engrs., 21 Dec. '17—8 May '18. A. E. F., 18 May '18, Gerardine Sector, Sept. 1—Oct. 10, '18; Meuse-Argonne Offensive, 1 Nov.—11, '18; Army of Occupation, 25 Apr.—25 May '19.
- RICHARDS, C. E., JR. (IV) Ensign, U. S. N. R. F. (A). C. Q. M., 15 Nov. '17; Ensign, 18 June '18. Ground School, M. I. T., 26 Dec. '17; Inspector's School, Curtiss Aeroplane and Motor Corp., Buffalo, N. Y., 19 Mch. '18; detached duty, Bu. of Cons. and Repair, Washington, D. C., 13 June '18; Asst. Inspector of Naval Aircraft, Curtiss Engineering Corp., Garden City, N. Y., 21 June '18—18 Feb. '19.
- RICHARDS, H. E. (VI) Ensign, U. S. N. R. F. Warrant Gunner, (Electrical) 25 Mch. '18; active duty, New York City, 12 Apr. '18; Ensign, 16 Oct. '18. U. S. Navy Steam Engr. School, Hoboken, N. J., 1 May '18; in training went to France on U.S.S. Ophir; U.S.S. Winding Gulf, 1 Nov.—21 Dec. '18.
- RICKETTS, J. L. (II) Pvt. 1 cl., F. A. 1st Ohio Cav., 25 Mch. '17; transferred Btry. E, 136th F. A., Camp Sheridan, Ala., for ten months. A. E. F., 28 June '18—24 Mch. '19; Hq. Co., 136th F. A., 28 Oct. '18. Marbache Sector; Troyon Sector.
- RIDDELL, W. B. (IV) Lt., Canadian Engrs. C. E. F., July '17—4 Mch. '19.
- RIMBACH, RICHARD (I) Pvt., Engrs. Camp Humphreys, Va., 24 Jan. '18—27 Nov. '18.
- ROBERTSON, W. H. (I) Lt. (j. g.), U. S. N. R. F. (A). Sea. 2 cl., 4 Dec. '17; C. Q. M., 1 Jan. '18; Ensign, 19 Mch. '18; Lt. (j. g.), 1 Oct. '18. Boston, Mass., to Dec. '17—25 Jan. '18; Buffalo, N. Y., 26 Jan. '18—15 Jan. '19. See Civilian Record.
- ROBINSON, W. R. (I) Pvt., A. S. 631st Aero Sq., 1 July—Nov. '18. See Civilian Record.
- ROESSLER, H. F. B. (X) Sgt., C. A. C. Pvt., 17 May '17; Corp., 5 July '18; Sgt., 16 Aug. '18. With 2d R. I., C. A. C., Ft. Standish, Mass., May '17—Oct. '18. A. E. F., 6 Oct. '18—28 Jan. '19.
- ROGAL, EDWARD (VI) 1st Lt., A. S. A. Pvt. 1 cl., May '17; 1st Lt., School of Military Aeronautics, M. I. T., 19 Nov. '17; Asst. Commandant of Cadets, Call Field, Texas, Jan. '18; Gunnery Inst. at Call Field, Apr.—May '18; C. O., Sq. D., Flying Officers Wing, Camp Dick, Texas, June—Aug. '18; C. O., Flying Officers Wing, Aug.—Dec. '18; Hon. disch. 1 Apr. '19.
- ROGERS, J. W. (II) 1st Lt., A. S. A. 2d Lt., Sig. C., Aviation Sect., 25 Sept. '17; 1st Lt., A. S. A., 31 July '16. At Washington, D. C. and Sig. C. Radio School, College Park, Md., 25 Oct. '17—26 Feb. '18; Observers School, Ft. Sill, Okla., 4 Mch.—7 Apr. '18; Inst., Chanute Field, Ill., 7 Apr.—3 July '18; Washington D. C. and Hoboken, N. J., 3—15 July '18. A. E. F., 15 July '18—28 Dec. '18; No. 1 (T.) Wireless School, Radio Navigation and Night Bombing, So. Farnborough, Hants, Eng., 8 Aug.; C. O., 23 Sept.—4 Dec. '18.

TECHNOLOGY'S WAR RECORD

- *ROGERS, R. T. (VI). See Roll of Honor (page 125).
- ROLLINS, WINGATE (XV) Lt. (j. g.), U. S. N. R. F. (A.). Sea. 2 cl., 10 Nov. '17; C. Q. M., Jan. '18; Ensign, 4 Mch. '18; Lt. (j. g.), 1 Oct. '18. Div. Officer, Cambridge, Mass.; Asst. to Naval Aviation Officer, 1st Naval Dist., Boston, Mass.; Asst. to Supervisor, U. S. N. R. F., Washington, D. C.; Asst. Recruiting Officer for Naval Aviation, New York City.
- *ROPER, KENYON (IV). See Roll of Honor (pages 95 and 201).
- ROSSMAN, E. F. (II) Corp., Q. M. C. Co. D., 110th Sup. Tn., Q. M. C., 28 June '17. A. E. F., 27 May '18—27 Apr. '19. St. Mihiel Offensive; Meuse-Argonne Offensive.
- ROWE, J. E. (II) 2d Lt., C. A. C. Pvt., 24 July '18; Pvt. 1 cl., 1 Sept. '18; 2d Lt., 19 Dec. '18. 9th Co., Coast Defense of Narragansett Bay, 24 July '18; Co. C, 58th Am. Tn., 1 Sept. '18; Co. E., C. A. C. Sch., 4 Oct. '18—19 Dec. '18. See Civilian Record.
- ROWE, R. R. (I) 2d Lt., Engrs. Co. A, 5th Engr. Tr. Regt., Camp Humphreys, Va., in Sept. '18.
- ROYCE, DONALD (XIII) Lt., U. S. N. Asst. Naval Constructor, Fore River Shipbuilding Corp., Quincy, Mass. in May '18.
- RUBIN, D. N. (I) Ensign, U. S. N. Sea. 2 cl., 9 July '18; C. M. M., 1 Oct.; Warrant Machinist, 13 Feb. '19; Ensign, (E.), 23 Apr. '19. Commonwealth Pier, Boston, Mass., Aug. '18; Steam Engr. School, Stevens Institute, Hoboken, N. J., Oct.; U. S. S. Louisville, 19 Feb.—1 Apr. '19.
- RUSSERT, W. R. C. (III) Acting 1st Sgt., Engrs. Engr. Enlisted R. C., 16 Jan. '18. Acting 1st Sgt. at Yale University in charge of chemists and engineers of S. A. T. C. in fall of '18. Disch., Feb. '19.
- RYAN, W. P. (X) 2d Lt., C. W. S. Pvt., Development Div., C. W. S., 25 Mch. '18; Corp., 20 June '18; 2d Lt., C. W. S., 27 Sept. '18.
- SAUNDERS, ALBERT (II) Ensign, U. S. N. R. F. Sea. 2 cl., U. S. N. R. F., 6 Aug. '18; C. M., 30 Aug.; Warrant Machinist, 20 Jan. '19; Ensign, (E.), 22 May. Engr. Course, M. I. T., '18; U. S. S. Santa Paula and U. S. S. El Sol, in foreign waters.
- SAWYER, A. F. (II) 2d Lt., Q. M. C. Pvt., Q. M. C., 4 Dec. '17; 2d Lt., 3 July '18. Tr. Div., Camp Johnston, Fla., 4 Dec. '17—Dec. '18. Edited a course in "Steam Engineering" for Trade Schools, Camp Johnston.
- *SAWYER, E. C. (VI). See Roll of Honor (page 92).
- *SCHROEDER, F. E. (IV). See Roll of Honor (page 116).
- SCOTT, W. J. (XI) C. M. M., U. S. N. R. F. In Service 6 Aug. '18. Tr. Station, Hingham, Mass., 6 Aug. '18; Public Works Dept., 1st Naval Dist., Navy Yard, Boston, 27 Aug.—21 Dec. '18.
- SEARLES, W. F. (II) M. M. 1 cl., U. S. N. R. F. In Service 18 Apr. '18. Roanoke, Va., 18 Apr. '18; A. E. F., 22 May '18—24 Jan. '19, French Aviation Cons. Detachment; on U. S. S. Leviathan, when attacked by five German submarines, 30 May; Pauillac, June '18; Army-Navy Project, Quimper, 29 Sept.
- SELTZER, MAX (II) Pvt. 1 cl., C. W. S. Entered Service 5 Aug. '18. Detached service, Cleveland, Ohio, 5 Aug.—16 Dec. '18. See Civilian Record.
- SHELTON, P. S. (VI) Warrant Gunner (E), U. S. N. R. F. In Service 2 Jan. '18. Naval Ammunition Depot, Hingham, Mass., 19 Oct. '18—17 May '19. See Civilian Record.
- SHIELDS, E. J. (IV) Ensign, U. S. N. R. F. Sea. 2 cl, U. S. N. R. F., '17; C. B. M., Dec. '17; Ensign, '18. Ensign Cadet Sch., Harvard University, '17; U. S. S. Machigonne, Provincetown, Mass., Feb. '18; Naval Hq., Brest, France, Aug. '18—Jan. '19.
- SHIRER, H. F. (IV) Sgt. 1 cl., M. C. Pvt., Ambulance Serv., 9 June '17; transferred to M. C. and made Sgt. 1 cl., 1 Mch. '18. Sect. 48, Ambulance Serv., Camp Crane, Pa., 9 June '17; in charge of erection and operation of Machine, Blacksmith and Repair Shop, Sect. 601, Sept. '17—1 Feb. '19.
- SIBLEY, D. S. (II) Ensign, U. S. N. R. F. (A). Motor Inspector, Naval Aviation Detachment, M. I. T., Jan. '18; in charge naval work, Propeller Factory, Jamestown, N. Y., July; Bu. of Steam Engineering, Curtiss Aeroplane and Motor Corp., Buffalo, N. Y., Aug.
- SIMPSON, R. M. (II) Capt., Marine Corps. Pvt., 25 May '17; 2d Lt., 11 Oct.; 1st Lt., 1 July '18; Capt., 2 July Co. 9, Recruit Depot, 25 May '17; 85th Co., 10th Regt., Quantico, Va., Oct.; Naval Proving Grounds, Indian Head, Md., July '18; 15th Regt., 2d Bn., Santo Domingo, '19.
- SLATOR, GROVER (VI) Sgt., M. T. C. '18. Co. D, 312th Recruit Unit, M. T. C.
- SMITH, ARTHUR (X) Corp., C. W. S. Pvt., Engr. R. C., 16 Jan. '18; Pvt. Ord. Corps. 24 Apr.; transferred to C. W. S., Pvt. 1 cl., July; Corp., Nov. Cleveland Laboratory, Edgewood Arsenal, Md., Apr. '18; Offense Laboratory, Development Div., C. W. S., Cleveland, Ohio, July—8 Dec. '18. Burned by mustard gas.
- SMITH, G. B. (VI) Capt., C. A. C. 2d Lt., C. A. C., 9 Aug. '17; 1st Lt., 9 Nov.; Capt., 15 Jan. '18. 2d Tr. Camp, Ft. Monroe, Va., 1 Sept. '17. A. E. F. Dec. '17—4 June '19; Hv. Arty. Sch. and Tractor Arty. Sch.; Inst., Arty. Center, Clermont-Ferrand, 12 Apr. '18; 54th Arty. Haussimont, July, transferred to Air Service and took course in Aerial Observation, Tours, Aug.; attached to Peace Comm., Paris, Dec.; convoy work, taking supplies to Luxemburg and Germany, '19.
- SMITH, H. L. (II) 2d Lt., Engrs. Pvt. 1 cl., Engrs., 6 May '18; 2d Lt., 1 Aug. Co. 6, 4th Engr. Tr. Regt., Camp Humphreys, Va., 6 May '18; Ex. Officer, Co. A, 2d Engr. Tr. Regt., 15 Aug.; C. O., Co. D, Camp Humphreys, Va., until 17 Jan. '19.

REGISTER OF MILITARY RECORDS

- SMITH, M. H. (VI) Radio Sgt., C. A. C. Pvt., Inf., 21 Sept. '17; transferred to Q. M. C., 12 Mch. '18; transferred C. A. C., 28 Mch.; Radio Sgt., C. A. C., 17 July. Co. C, 302d M. G. Bn., Camp Devens, Mass., 21 Sept. '17; C. A. Off. Tr. Sch., Ft. Monroe, Va., 28 Mch. '18. A. E. F., 29 July '18—2 Feb. '19; Hq. Co., 61st Arty., C. A. C.
- SMITH, M. L. (XV) 2d Lt., A. S. A. Pvt. (Cadet), A. S., 30 July '17; 2d Lt., A. S. A., 12 Feb. '18. School of Military Aeronautics, Champaign, Ill., 30 July '17; Taliaferro Field, Texas, Feb. '18; Disch. 10 Dec. '19.
- SMITH, R. H. (XV) Ensign, A. S. Plane Inspector, U. S. Naval Aviation Detachment, M. I. T.; resigned from Naval Aviation in August '18 to take a position in the Navy Yard, Washington, D. C.; in charge of official Govt. Wind Tunnel and Aeronautic Laboratory.
- SMITH, R. S. (I) 2d Lt., C. A. C. Pvt. 1 cl., C. A. C., Aug. '18; 2d Lt., Oct. 1st Tr. Co., 5th Tr. Camp, Ft. Monroe, Va., Aug. '18. A. E. F., Oct. '18—'19; Orientation Course, Hv. Arty. Sch., Angers, Nov. '18; Casual Officers' Camp, Angers, Mch. '19.
- *SMITH, W. F. See Roll of Honor (page 120).
- SMYTH, R. B. (II) Sgt., Engrs. Entered Service, 23 May '17. Corp., 24 Apr. '18; Sgt., 9 Nov. '18. A. E. F., 27 July '17—27 July '19; Co. F, 14th Engrs. Arras-Baurne Sector, 21 Aug. '17—May '18, including Somme Defensive, 21 Mch.—6 Apr. '18; Aisne-Marne Sector, 2 Aug.—10 Sept. '18, including Aisne-Marne Offensive, 2 Aug.—6 Aug. '18; Meuse-Argonne Sector, 19 Sept.—11 Nov. '18, including Meuse-Argonne Offensive, 26 Sept.—11 Nov. '19. (Page 77.)
- SOUTHWICK, A. M. (X) Ensign, U. S. N. R. F. Appr. Sea., Class 4, U. S. N. R. F., 18 July '18; C. B. M., Dec. '19; Ensign, 11 Apr. '19. See Civilian Record.
- SPOONER, F. C. (II) Pvt., F. A. Entered Service 16 Oct. '18. 26th Tr. Btry. F. A., Off. Tr. Camp, Louisville, Ky., 16 Oct.—29 Nov. '18. See Civilian Record.
- STEERE, J. A. (I) Capt., F. A. Co. M, 4th Provisional Officers Bn. Fort Leavenworth, Kansas, in Nov. '17; 13th F. A., Camp Green, N. C., in Jan. '18. A. E. F., Spring '18—Summer '19; Supply Officer, 13th F. A. Army of Occupation.
- STEIN, M. H. (I) Pvt., Engrs. Co. F, 104th Engrs., 15th Sept. '17; 1st Army Hq. Regt., Co. I, 5 Jan. '18. A. E. F., 23 Mch. '18—22 July '19; Sorbonne Detachment, University of Paris, 1 Mch.—July '19. Toul Sector.
- STEPHENS, H. C. (III) Cadet, F. A. Cent. Off. Tr. Sch., Camp Taylor, Ky., 19th Tr. Btry., Aug.—Dec. '18. See Civilian Record.
- STETLER, M. M. (IV) 1st Lt., Cav. 2d Lt., Cav., 26 Nov. '17; 1st Lt., 15 Oct. '18. Army Service Schools, Ft. Leavenworth, Kansas, Nov. '17; 16th Cav. in Texas, 25 Feb. '18; 1st Cav., Ariz., 26 May '18.
- STEVENS, F. B. JR., Maj., C. A. C. Pvt., Apr. '17; Corp., July '18; Regt. Sgt. Maj., Aug. '18. 10th Co., R. I., C. A. C.; transferred Hq., 51st F. A. Brig., Aug. '17. A. E. F., Sept. '17—Apr. '19. Chemin des Dames and Toul Sectors; Seicheprey; Champagne-Marne Defensive; Aisne-Marne Offensive; St. Mihiel Offensive; Meuse-Argonne Offensive.
- STEVENSON, E. P. (V) 1st Lt., C. W. S. Research Div., C. W. S., Oct. '18—19 Feb. '19. See Civilian Record.
- STEWART, L. A. (II) 2d Lt., Inf. Co. A, 43d Regt., Inf., New Orleans, La.
- STURTEVANT, H. V. (II) 2d Lt., A. S. A. Radio Branch, 14 Dec. '17. Princeton Ground School, Mch. '18; transferred to Columbia University, 1 Apr. '18; Radio School, Ft. Sill, Okla., 1 July '18; Gerstner Field, La., 7 Aug. '18; Inst. in Radio, Camp McClellan, Ala., 1 Sept. '18; Camp Bragg, N. C., organizing Radio School, 1 Feb. '19; Radio Officer, 74th Aero Sq., Langley Field, Va., 1 Aug. '19; Carlstrom Field, Fla., until 7 Sept. '19.
- SULLIVAN, J. H., JR. (XV) Ensign (T), U. S. N. Sea. 2 cl., U. S. N. R. F., 27 Oct. '17; Y. 2 cl., 20 Dec. '17; C. B. M., 16 June '18; Ensign, 14 Oct. '18; Ensign (T), U. S. N., 22 Apr. '19. Bumkin Island, Boston, Mass., Oct. '17; Charlestown Navy Yard, Metallurgical Laboratory, Dec. '17—16 June '18; U. S. N. Cadet School, Harvard University, June '18—14 Oct. '18; Inst., Officer Material School, Harvard University; U. S. S. Mahan 15 June '19.
- SWAN, H. G. (X) Lt. (j. g.), U. S. N. R. F. (A). C. Y., 8 Aug. '17; Ensign, 3 Apr. '18; Lt. (j. g.), 1 Oct. '18; U. S. Naval Aviation Detachment, M. I. T., 10 Dec. '17; Curtiss Aeroplane and Motor Corp., Buffalo, N. Y., 10 Jan. '18; Naval Aircraft Factory, Philadelphia, Pa., 15 Apr.—31 Dec. '18.
- THOMAS, G. W. (I) Ensign, U. S. N. Sea. 2 cl., 5 Apr. '18; C. B. M., 18 Oct. '18; Ensign, 20 Feb. '19. Active duty, 27 June '18; Officer Material School, Harvard University, Oct. '18—21 Feb. '19.
- THORPE, L. A. (II) Lt. (j. g.), U. S. N. R. F. (A). Lds. for Q. M.; Q. M., 2 cl.; Ensign; Lt. (j. g.). Pensacola Fla., 16 July '17; M. I. T., 26 Nov. '17; Pensacola, Fla., 19 Feb. '18; Brooklyn Naval Hosp., 16 July '19 to date (18 Aug. '19).
- THRESHER, B. A. (XV) Pvt., Engrs. Engr. R. C., 16 Jan. '18. S. A. T. C., 10 Oct. '18—12 Dec. '19.
- TIMANUS, C. S. (I) C. Q. M. (A), U. S. N. Entered Service, 4 Apr. '18; Sea. 2 cl., 25 July '18; C. Q. M. (A), 7 Aug. '18. Naval Aviation Detachment, M. I. T., 7 Aug. '18—21 Nov. '18.
- TIPTON, J. H. (VI) 2d Lt., Aviation Sect., Sig. R. C. Pvt., Sig. R. C., 31 May '18; transferred A. S. 20 Aug. '18; 2d Lt., Aviation Sect., Sig. R. C., 20 Dec. '18. Enlisted at Knoxville, Tenn., 13 May '18; 4th Service Co.; 31st Service Co.; 295th Provisional Service Sq.; 296th Provisional Service Sq.; U. S. Sig. C. Radio School, College Park, Md.; A. S. School for Radio Officers, Columbia, University; A. S. School for Radio Officers, Post Field, Ft. Sill, Okla.; Advanced School for Radio Officers, Gerstner Field, La. See Civilian Record.
- *TOVEY, H. O. (XIII). See Roll of Honor (page 106).

TECHNOLOGY'S WAR RECORD

- TURNER, W. H. (III) Lt. (j. g.), U. S. N. R. F. (A.). Sea, 2 cl., 26 Nov. '17; C. Q. M., 10 Dec. '17; Ensign, 17 Apr. '18; Lt. (j. g.), 1 Oct. '18. M. I. T. Naval Aviation Detachment, 10 Dec. '17; Inspector of Engr. Material (Aero), Pittsburgh, Pa., 28 Jan.—'18; Inspector of Engr. Material, Packard Motor Car Co., Detroit, Mich., mfrs. of NC—4, 16 Sept. '18—20 Sept. '19. (Page 244.)
- *TUTEN, C. R. (III). See Roll of Honor (page 104).
- UEBLACKER, A. A. (VI) 1st Lt., F. A. 2d Lt., 14 Nov. '17; 1st Lt., 20 Sept. '18. 2d Off. Tr. Camp, Ft. Meyer, Va., Aug. '17; Btry. C. 3d F. A., Camp Travis, Texas, Jan. '18; School of Fire, Ft. Sill, Okla., Mch. '18. A. E. F., 19 July '18—29 July '19; Radio Officer, Hq. Co., 3d F. A., Camp du Valdahat at Arky. Tr. Center till Oct. '18; Villouxel, Oct. '18; Chaume (Côte d'Or) Dec. '18; University of Montpellier, Mch. '19.
- UNDERWOOD, H. R. (H) Pvt., A. S. Engr. Detachment, Marmon Aircraft Motor Plant, Indianapolis, Ind., 10 May '18—15 Dec. '18. See Civilian Record.
- VAN DA LINDA, L. B. (XV) 1st Lt., A. S. Plattsburg Training Camp, 25 Aug. '17; School Military Aeronautics, Cornell University, Ithaca, N. Y., 27 Nov. '17; School Military Aeronautics, Cambridge, Mass., 22 Jan. '18; Rich Field, Waco, Texas, 29 Mch. '18; Garden City, L. I., 1st Oct.—31 Dec. '18.
- VAN KIRK, R. W., JR. (X) Corp., C. W. S. Pvt., C. W. S., 16 Mch. '18; Corp., Aug. '18. Cleveland, Ohio, 24 Mch.—1 Dec. '18. In U. S. Marine Hospital, Cleveland, with mustard gas burns in May, and 15 July—1 Sept. '18.
- VOUGHT, A. B. (II) 2d Lt., A. S. Entered Service, Jan. '18; 15th Aero Sq.; Balloon School, Ft. Omaha; Aerial Observer, Arcadia, Calif. until Jan. '19.
- WALKER, A. C. (X) Pvt., Engrs. Pvt., Engr. R. C., 19 Jan. '18; transferred Chem. Development Sect., Research Div., C. W. S., 4 Nov. '18. See Civilian Record.
- WALLACE, S. G. (V) Lds. for Q. M., U. S. N. R. F. (A.). Enlisted 12 Dec. '17; Tr. Station, Charlestown, S. C., 19 May '18; Operating Base, Hampton Roads, Va., 9 Sept.—29 Jan. '19.
- WANSER, ROY (XV) 2d Lt., A. S. A. Entered Service, 8 Jan. '18; Kelly Field No. 2 for eight months.
- WARNER, D. D. (XV) 1st Lt., A. S. 96th Aero Sq., 16 July '17. A. E. F., 2 Nov. '17—1 Nov. '18; Bombing Observer. Toul Sector, Apr.—Sept. '18. Wounded in aerial combat, 4 Sept. '18. Distinguished Service Cross, 16 Oct. '18. (Pages 137 and 204.)
- WARNER, F. L. (II) Capt., Engrs. Pvt., Engrs. 7 June '17; 2d Lt., 29 June '17; 1st Lt., 19 July '17; Capt., 26 Aug. '18. A. E. F., 24 Sept. '17—24 Apr. '18, 101st Engrs., 26th Div. U. S., 24 Apr. '18—4 Mch. '19.
- WASHBURN, F. A. (VI) C. Q. M., U. S. N. R. F. (A.). Sea., 2 cl., U. S. N. R. F. (inactive), 3 Dec. '17; C. Q. M. (A.), 23 Nov. '18. Inst. in Gunnery, M. I. T. Ground School, 25 Sept. '17—4 Jan. '19. (Page 45.)
- WATT, C. H. (III) 2d Lt., F. A. Pvt., Engr. R. C., 22 Jan. '18; 2d Lt., F. A. 31 Aug. '18. 4th Off. Tr. Camp, Camp Devens, Mass., 15 May '18; F. A. Cent. Off. Tr. Sch., Camp Taylor, Ky., 1 July '19; Btry. C, 2d Regt., F. A. Repl. Depot, Camp Jackson, S. C., 7 Sept. '18—11 Dec. '18.
- WEBER, H. C. (X) 2d Lt., C. W. S. Pvt., A. S., 14 Dec. '17; 2d Lt., A. S., 23 Feb. '18; 2d Lt., C. W. S., May '18. Gerstner Field, La., Feb.—May '18; Chemical Corps at American University Experiment Station, Washington, D. C., May—Dec. '18. See Civilian Record.
- WEBER, WILLIAM (IV) Ensign, U. S. N. R. F. Appr. Sea., 12 June '17; Sea., 2 cl., 28 Aug. '17; Sea., 1 cl., 28 Oct. '17; Ensign. Off. Tr. Sch., 1 May '18; U. S. Naval Academy, Annapolis, Md.; U. S. S. Idaho, 30 Sept. '18; U. S. S. New Hampshire, 11 Oct. '18.
- WEI, W. L. (VI) Sec., Y. M. C. A., 1 Oct. '18. England, Oct.—Nov. '18; France, in charge of athletic work among Chinese laborers, Nov. '18—Jan. '19; transferred Educational Dept., and taught students from Royal Engrs. in mathematics and electricity, Jan.—Apr. '19. (Page 299.)
- WEISCOFF, M. W. (II) 2d Lt., Ord. Corps. Ord. Inspector, Watervliet Arsenal, N. Y.
- WELLCOME, H. E. (H) Capt., C. A. C. 2d Lt., C. A. C., 22 Aug. '17; 1st Lt., 16 Oct. '17; Capt., 8 Mch. '18. A. E. F., 25 Dec. '17—31 Dec. '18; Casual, 59th Arty., C. A. C.; 8th Anti-Aircraft Sector.
- WELLS, F. H. (II) 1st Sgt., Inf. M. G. Co. 3, Mass. Inf., 25 July '17; Hq., 3d Pioneer Inf., 12 Feb. '18. A. E. F., 29 Aug. '18—13 July '19. Meuse-Argonne Offensive.
- WELLS, R. H. (XII) Ensign, U. S. N. R. F. (A.). U. S. Naval Air Station, Queenstown, Ireland, In Feb. '19.
- WHEELER, H. B. (II) Capt., Inf. 37th Inf., 9 Aug. '17; on Mexican Border, Nov. '17—Nov. '19.
- WHITCOMB, R. L. (II) Ensign, U. S. N. R. F. M. I. M. 2 cl., U. S. N. R. F., 3 Dec. '17; Ensign, 12 Apr. '18. U. S. S. Pueblo, on convoy duty, May—Nov. '18.
- WHITE, F. W., JR. (XV) 1st Lt., C. A. C. Pvt., 5 Sept. '17; Corp., 10 Sept. '17; Sgt., 20 Sept. '17; 1st Sgt., 5 Oct. '17; 2d Lt., C. A. C., 14 Nov. '17; 1st Lt., 23 May '18. Co. C, 301st M. G. Bn., 76th Div., Camp Devens, Mass., 5 Oct. '17; Btry. F, 303d F. A., 76th Div., Ft. Monroe, Va., 1 Dec. '17; 12th Co., C. A. C., 15 Apr. '18; 4th Co., C. A. C., Washington, D. C., 16 July '18; C. O., White House Guard, C. A. Camp, Washington, D. C., 5 Aug. '18—18 Nov. '18; C. O., 4th and 7th Companies, Ft. Monroe, Va., 19 Nov. '18—1 Jan. '19.
- WHITE, G. R. (XV) Sgt., Engrs. Pvt., 30 June '17; Sgt., Mch. '19. Co. A, 101st Engrs., 26th Div., 30 June '17. A. E. F., Sept. '17—Apr. '19. Chemin des Dames Sector, Seicheprey; Aisne-Marne Offensive (Château-Thierry); St. Mihiel Offensive; Meuse-Argonne Offensive. Gassed with mustard at Château-Thierry.

REGISTER OF MILITARY RECORDS

- WHITE, J. M. (I) 2d Lt., Royal Engrs. (British). Driver, American Field Service, S. S. U. 4, 14 Dec. '16—7 July '17. Pvt., Royal Engrs., 23 Dec. '17; Corp., Feb. '18; Cadet, June '18; 2d Lt., Oct. '18. B. E. F., Dec. '17—Dec. '19 with 492d Field Co. Segesha, Maselskaya, Kavgora, Pliuma, in North Russia. With French in Champagne Offensive Apr.—May '17. Mentioned in dispatches, 16 Sept. '19.
- WILEY, S. K. (IV) 2d Lt., Engrs. Pvt., Engrs., 17 Jan. '18; Pvt., 1 cl., May '18; 2d Lt., 23 July '18. 4th Engr. Off. Tr. Camp, Camp Lee, Va., May '18; Camp Humphreys, Va., 10 Aug. '18; Hq. Co., 5th Engr. Tr. Regt., 14 Aug. '18; Casual Detachment Service Bn., 9 Sept. '18; 3d Engr., Tr. Regt., 18 Dec. '18—28 Jan. '19.
- WILKINS, R. A. (X) 2d Lt., C. W. S. Pvt., Development Div., C. W. S., 25 Mch. '18; Corp., 20 June '18; 2d Lt., 12 Aug. '18. In charge of research chemical laboratory, 26 Mch. '18—14 Feb. '19.
- WILLIAMS, A. L. (IV) 2d Lt., Engrs. Pvt., 16 Jan. '18; Corp., 20 Jan. '18; Sgt., 12 Feb. '18; Sgt. 1 cl., 16 Mch. '18; 2d Lt., 25 Sept. '18. Vancouver Barracks, 16 Jan.—21 Apr. '18; Camp Merritt, N. J. A. E. F., 8 May '18—11 June '19 with 318th Engrs. (Sappers). Gerardmer Sector (Vosges), 28 Aug.—22 Oct. '18; Meuse-Argonne Offensive, 30 Oct.—11 Nov. '18; Army of Occupation.
- WILSON, W. C. (XV) Lt. (j. g.), U. S. N. R. F. (A.). Ensign, 27 Aug. '18; Lt. (j. g.), 11 Aug. '19. U. S. N. Air Station, Bay Shore, L. I.; Pensacola, Fla., and Naval Department, Washington, D. C.
- WINDLE, A. E. (II) 2d Lt., A. S. A. Enlisted 7 Dec. '17; M. I. T. School of Military Aeronautics and Kelly Field, Texas, Dec. '17—Mch. '18; Engr. Officer, Barron Field, Texas, Mch.—July '18. A. E. F., 21 July '18—5 Jan. '19; Asst. Engr. Officer, Issoudun; Officer in Charge of Motor Instruction at School for Flying Officers, St. Maixent.
- WINSLOW, E. N. (IV) Sgt., Ord. Corps. Driver, Reserve Mallet, attached French Army, June—Nov. '17; transferred A. E. F.; Sgt., Ord. Corps, Engr. Div., 22 Nov. '17—June '19. (Page 87.)
- WIRT, H. L. (XIII) 2d Lt., Engrs. Enlisted 16 Jan. '18; 2d Lt., 25 May '18. Off. Tr. Camp, 6th Co., Camp Lee, Va. A. E. F., 3 Sept. '18—30 June '19 with 539th Engrs. (Pages 41 and 45.)
- WOODLAND, L. N. (IV) Ensign, U. S. N. R. F. Sea. 2 cl., U. S. N. R. F., 6 Dec. '17; Y. 2 cl., 1 Mch. '18; Ensign, 17 May '18. Navy Dept., Charlestown Navy Yard, Dec. '17; Washington, D. C., 18 June '18—31 Mch. '19.
- WOODRUFF, G. W. (II) reported Pvt. 307th Engrs. See Civilian Record.
- WOODRUFF, L. F. (VI) Pvt., Engrs., 28 Oct. '18. 472d Engrs., Camp Humphreys, Va.
- WOODWARD, J. B. (IV) 2d Lt., Engrs. Pvt., Engrs., 21 Sept. '17; Corp.; Sgt.; 2d Lt. A. E. F., July '18—July '19, with 301st Engrs. St. Mihiel Offensive; Minor Operations in the Woivre; Operations between Meuse and Moselle; Army of Occupation.
- *WOOTEN, J. C. (III). See Roll of Honor (page 95).
- WRIGHT, H. W. (IV) reported with American Field Service.
- WRIGHT, T. P. (IV) Lt. (j. g.), U. S. N. R. F. (A.). Sea., 2 cl., U. S. N. R. F., Class 5, 21 Nov. '17; Ensign, 25 Mch. '18; Lt. (j. g.), 29 Mch. '19. Stationed at Cambridge, Mass., Buffalo, N. Y., and Garden City, L. I.; conducted inspection of N-C flying boats, preparing for transatlantic flight. (Page 244.)
- WRIGLEY, P. P. (VI) 2d Lt., A. S. 51 Aero Sq., Radio Branch, A. S.; College Park, Md., 7 Jan. '18; Gerstner Field, La., 28 June '18; Ft. Sill, Okla., 28 July '18; Mineola, L. I., 17 Aug. '18—Dec. '18.
- WYER, WILLIAM (IX) 1st Lt., Engrs. Pvt. 1 cl., Engrs., 2 May '18; 2d Lt., 25 May; 1st Lt., 13 Sept. 4th Engr. Off. Tr. Camp, Camp Lee, Va., May '18; Camp Humphreys, Va., 6 June; Camp Laurel, Md., 8 July; Camp Humphreys, Va., 28 Sept.—21 Dec. '18.

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- ADAMS, E. C. (VI) Pvt., S. A. T. C. Pvt., Engr. R. C., 21 Feb. '18. Transferred to S. A. T. C., M. I. T., 23 Oct.—9 Dec.
- ADAMS, F. S. (VI) Sea., U. S. N. R. F., 10 Apr. '18. Test Dept., Naval Experimental Station, New London, Conn., assisting in tests of under-water and submarine detectors.
- ALDRICH, E. H. (I) 2d Lt., C. A. C. Driver, American Field Service, 3 May '17; Pvt., C. A. C., 30 May '18; 2d Lt., 25 Sept. S. S. U. 27, attached to French Army, 3 May—1 Dec. '17; C. A. Sch., Ft. Monroe, Va., May '18; Ft. Monroe, Va., 25 Sept.—Dec. '18. Champagne Offensive, '17. Croix de Guerre with Silver Star; American Field Service Medal.
- AMES, A. P. (XV) Enlisted in Navy, Oct. '18. Assigned to Engr. Off. Sch., U. S. N. R. F., when armistice was signed and assignment was cancelled.
- AMES, P. D. (II) Pvt., Q. M. C. Service Co. No. 1, Camp Johnston, Fla., 4 June—24 Dec. '18. See Civilian Record.
- ANDERSON, E. C. 1st Lt., F. A. A. E. F., France and Germany, '18—'19. F. A. Sch.; Btry. C, 5th F. A., '18; Btry. F, 6th F. A., Coblenz, Feb. '19.
- BABBITT, C. S. (VI) 1st Lt., C. A. C. 2d Lt., C. A. C., 26 Oct. '17; 1st Lt., May '18. 68th C. A. C., 26 Oct. '17. A. E. F., France, '18—'19; Aerial Observer.
- BABBITT, F. M. (II) 2d Lt., Engrs. Pvt., Engrs., '17; 2d Lt., '18. 2d Co., Off. Tr. Camp, Camp Devens, Mass. A. E. F., France, '18—'19; Co. C, 78th Engrs.
- BAKER, F. A. (VI) C. Q. M., U. S. N. R. F. (A.) In Service May '18. Ground School, M. I. T., May '18; Naval Air Station, Miami, Fla., Aug.—Nov.

TECHNOLOGY'S WAR RECORD

- BAKER, F. P., (X) Pvt., Engr. R. C., 31 Dec. '17.
- BALFOUR, M. C. (VII) Sgt., Sn. C. Pvt., Sn. C., 16 Sept. '18; Corp., 27 Mch. '19; Sgt., 20 May '19. 302d Water Tank Tn., Camp Holabird, Md., 16 Sept. '18. A. E. F., 29 Sept. '18—17 Aug. '19; Commercy, (Meuse), 16 Oct.; attached to 2d Army; pumping stations and filter plants, Allery (Saône et Loire), Tours and St. Nazaire. Mense-Argonne Offensive. (Page 219.)
- BARNEY, F. W. (II) Ensign, U. S. N. R. F. Entered Service, 20 July '18; Naval Overseas Transportation Service, 20 July '18—7 Mch. '19. Member, Bd. of Survey of ships, tugs, and barges to be purchased by Navy; Junior Engr., trial trip tests of new ships; work on salvage of materials, 7 Mch. '19.
- BARNICOAT, F. M. (XIII) 2d Lt., Ord. Corps. Pvt., Engrs., 19 May '17; Corp., 4 July; transferred to Inf., 7 Sept.; transferred to Ord. Corps. as Pvt., 26 Oct.; Sgt., Ord., 16 Nov.; 2d Lt., 24 Nov. '18. 101st Engrs., Wentworth Institute, Boston, Mass., 19 May '17; Watertown Arsenal, 26 Oct.; Ord. Engr. Tr. Sch., Aberdeen Proving Grounds, Md., 5 Sept.—24 Dec. '18.
- BARRETT, H. W. (XV) 2d Lt., Inf. Pvt. 1 cl., Inf., 5 Jan. '18; Corp., 15 Apr.; Sgt., 3 June; 2d Lt., 12 July. 3d Off. Tr. Camp, Camp Upton, N. Y., 5 Jan. '18; Co. K, 307th Inf., Mch. A. E. F., 6 Apr. '18—29 Mch. '19; Co. H, 9th Inf., 12 July. Albert Sector; Vosges Sector; Marbach Sector; St. Mihiel Offensive; Champagne Offensive. Wounded at Blanc Mont. Distinguished Service Cross. (Pages 131 and 195.)
- BARTLETT, F. H. (V) 2d Lt., C. A. C. '17. Ft. Standish, Mass., Apr. '18.
- BARTLETT, R. H. (XIII) Sea., 2 cl., U. S. N. R. F., 6 Apr. '18. Charlestown Navy Yard, Mass., 1 Oct. '18—23 Jan. '19.
- BASSETT, W. H., JR. (X) Sgt., Ord. Corps. Pvt., Ord. Corps., 5 Feb. '18; Sgt., 24 Oct. '18. Aide to Chief of Metallurgical Div., Inspection Div., Ord. Dept., Washington, D. C., 5 Feb. '18; intensive training as Engr. of Tests, Pittsburgh, Pa., Mch.; Engr. of Tests, Cayahoga Stamping and Machine Co., (mfg. 75 mm. cartridge cases), Cleveland Brass & Copper Mills, Inc., and Cleveland Crane and Engineering Co., forging 5-inch steel shells; Inspector, Cleveland Brass and Copper Mills, Inc., mfg. cartridge case discs and brass rods for fuses. Disch., 20 Jan. '19.
- BAUM, G. L. (XV) Corp., Ambulance Service. Pvt., Ambulance Service, '17; Corp., '18. S. S. U. 71, with French Army, '17; S. S. U., 32, Feb. '18; in the Vosges Mountains, Mch.; S. S. U. 644, Apr. '18. Croix de Guerre.
- BEAULIEU, L. E. (VI) Pvt., Engr. E. R. C. at M. I. T., 28 June '18. See Civilian Record.
- BEECHÉ, G. A. (III) Corp., Tank C. In Service 6 Nov. '18. 343d Light Tank Bn., Tr. Camp, Raleigh, N. C.
- BEERS, G. F. (I) Pvt., Inf. (N. A.), 19 Sept. '17. Co. F, 302d Inf.
- BENNETT, W. F., JR. (VI) Pvt., S. A. T. C.
- BENT, R. L. (XV) Ensign, U. S. N. R. F. Machinist, 2 cl., U. S. N. R. F., 9 Sept. '17; Ensign, 6 June. Ensign Cadet Sch., Cambridge, Mass., 9 Sept. '17; U.S.S. America (Transport), June.
- BERMINGHAM, F. A. (IV) 2d Lt., C. A. C. Pvt., C. A. C., 15 June '18; 2d Lt., 25 Sept. Tr. Camp, Ft. Monroe, Va., 15 June '18. A. E. F., 12 Oct. '18—12 Aug. '19; Hv. Arty. Tr. Bn., Angers; Asst. Regtl. Sup-Officer, 54th C. A. C., Nov.; Renting Requisition and Claims Bn., S. O. S., 15 Jan. '19; Town Maj., Angers Area, later in Cholet Area.
- BEST, H. W. (IX) Ensign, U. S. N. R. F. (A.). Sea., 2 cl., U. S. N. R. F., 22 Dec. '17; C. Q. M. (A.); Ensign, 18 Sept. '18. Naval Aviation Detachment, M. I. T., 22 Dec. '17; Nova Scotia, Sept.—Dec '18; Naval Aviation Air Station, Miami, Fla., '19.
- BLAKE, A. H. (II) Appr. Sea., U. S. N. R. F., 1 Oct. '18. S. N. T. C., M. I. T.
- BLOOD, R. M. (XV) Appr. Sea., U. S. N. R. F., 22 Oct. '18. S. N. T. C., M. I. T.
- BLOUKE, PIERRE (IV) 2d Lt., A. S. A. Pvt., Off. Tr. Camp, 15 May '17; 2d Lt., A. S. A., Aug. '17. U. S., May '17—Jan. '19; Ft. Sheridan, Ala., and Ellington Field, Texas.
- BOMAR, E. C. (XV) Capt., C. A. C. 1st Lt., C. A. C. '17; Capt., '18. Adj., 1st Bn., 61st C. A. C., Ft. Monroe, Va., '17. A. E. F., France 18—'19. Gondrecourt, Jan. '19.
- BOND, G. R., JR. (X) Pvt., C. W. S. Pvt., Engr. E. R. C., 21 Jan. '18; transferred to active service in C. W. S., Lakeside Hospital, Cleveland, Ohio, 15 Nov.—13 Dec. '18.
- BOTT, T. H., JR. (V) 2d Lt., F. A. R. C. Pvt., F. A., 29 Aug. '18; 2d Lt., F. A. R. C., 11 Jan. '19. F. A. Cent. Off. Tr. Sch., Camp Taylor, Ky., 2 Sept. '18—11 Jan. '19.
- BOURKE, N. T., 2d Lt., Engr. R. C. Pvt., Engrs., 31 Jan. '18; 2d Lt. Engr. R. C., 11 Jan. '19. Rejected for enlistment three times for defective eyesight. Enlisted in Engr. E. R. C. under "optical waiver." Off. Tr. Sch., Camp Hunphreys, Va. See Civilian Record.
- BOWMAN, J. D. (VI) 1st Lt., Inf. Pvt. Inf., 4 Sept. '17; Sg., 1 Oct.; 2d Lt., 1 June '18; 1st Lt., 22 Oct. Co. E, 333d Inf., Camp Taylor, Ky., 4 Sept. '17; Repl. Camp, Camp Pike, Ark., 10 June '18; Co. C, 307th Bn., Hv. Tank C., Camp Polk, N. C., 1 Oct.—14 Dec. '18.
- BRAATEN, I. T. (VI) 1st Lt., F. A. Pvt., Engrs., 6 Sept. '17; Officer Candidate, F. A., 19 Apr. '18; 2d Lt., F. A., 1 June; 1st Lt., 2 Nov. Co. B, 313th Engrs., Camp Dodge, Iowa, 6 Sept. '17; 3d Off. Tr. Camp, F. A., 5 Jan. '18; Camp Jackson, S. C., 19 Apr.; Sup. Officer, Hq., 11th F. A. Brig., Camp Meade, Md., 4 Aug. A. E. F., France, 2 Nov. '18—24 Mch. '19; Brig. Radio Officer, 11th F. A. Brig., Advance Sch. Det., Bordeaux, Nov. '18.

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- BREHAUT, C. S. (I) Pvt., Amb. Sect., M. C., 13 June '17. Sect. 605, Amb. Serv., Allentown, Pa., 13 June '17. A. E. F. 2 May '18—1 May '19; attached to 832d Aero Sq., Winchester, England; Ambulance Driver, American Red Cross Military Hosp. No. 4, 15 June '18; Automobile Mechanic, Camp Hosp. No. 40, 12 Feb. '19.
- BRISTOL, B. H., 2d (II) Ensign, (E.), U. S. N. R. F. Sea. 2 cl., U. S. N. R. F., 5 Apr. '18; C. M. M., 3 Dec.; Warrant Machinist, 27 Mch. '19; Ensign (E.), 5 June '19. Hingham, Mass., 31 Oct. '18; Receiving Ship, Boston, 27 Nov.; Pelham Bay, 3 Dec.; Steam Engr. Sch., Hoboken, N. J.; U.S.S. Canandaigua, (Transport), 4 Apr. '19. Steam Engr. Sch., Hoboken, N. J., 4 May—12 June.
- BROWN, L. A. JR. (IV) Pvt. (Candidate Officer), F. A. Pvt., Inf., 5 Sept. '18; transferred to F. A., 7 Nov. 24th Co., 6th Tr. Bn., 155th Depot Brig., Camp Lee, Va., 5 Sept. '18; Acting Sgt., Co. A, 10th Bn., Inf. Repl. Troops, 12 Oct.; 115th Provisional Overseas Co., 1 Nov.; F. A. Off. Tr. Sch., Camp Taylor, Ky., 7 Nov.—7 Dec. See Civilian Record.
- BROWN, W. C. (II) 2d Lt., Sig. C. Pvt., 4 Oct. '17; 2d Lt., Sig. C., 16 Apr. '18. 301st Field Sig. Bn., Camp Devens, Mass., 4 Oct. '17; Sig. Off. Tr. Sch., Leon Springs, Texas, 30 Dec.; Bn. Intelligence Officer, 7th Field Sig. Bn., Ft. Bliss, Texas, 16 Apr. '18; Bn. ordered to Nogales, Ariz., to construct telephone lines connecting outpost border cavalry patrols, 8 Sept. '18. Disch., 31 Dec. '18.
- BRTON, L. M. (VI) Cadet Pilot, U. S. N. R. F. (A). 27 Mch. '17. A. E. F., France and England, 21 May '17—13 Dec. '18; Ecole d'Aviation, Tours, May '17; U. S. Naval Seaplane Sch., Moutchic (Gironde); Naval Purchasing Office, Paris, purchasing aviation material in France and England, 10 Feb. '18.
- BRYANT, E. H. (X) 2d Lt., C. A. C. Pvt., C. A. C., 3 June '18; 2d Lt., 25 Sept. Ft. McKinley, Md., 3 June '18; Tr. Camp, Ft. Monroe, Va.; Boston, Mass., 25 Sept.; 25th Anti-Aircraft Btry. Ft. Rodman, Mass., 16 Oct.; 25th Anti-Aircraft Btry., Camp Eustis, Va., 19 Oct.; 64th Bn., 16th Anti-Aircraft Sector, 10 Nov.; Casual Detachment, 20 Dec.; 401st Reserve Labor Bn., 20 Jan.—7 May '19.
- BYRNE, P. B. (XV) Ensign, U. S. N. R. F. Sea. 2 cl., U. S. N. R. F., 14 Feb. '18; C. B. M., 18 June; Ensign, 14 Oct. Charlestown Navy Yard, Mass., 14 Feb. '18; Officer Material Sch., Cambridge, Mass., 18 June; Receiving Ship, New York, 13 Nov.; U.S.S. Antigone (Navy Transport), 15 Feb.—5 June '19.
- BURBANK, R. L. (X) Pvt., C. W. S. Pvt., Engr. E. R. C., June '18; transferred to C. W. S., 9 Nov. but had no active service on account of the signing of the armistice.
- BURCKETT, D. M. (VI) Sgt., Engrs. Pvt., Engrs., 25 Nov. '17; Corp., 1 Mch. '18; Sgt., 1 Aug. Wagon Co. No. 3, 23d Engrs. (Highway), Camp Meade, Md., 8 Jan. '18. A. E. F., 30 Mch. '18—11 June '19; Railroad Yards, Nevers, (Nievre), May '18; Highway Engrs., at Front, Aug. St. Mihiel Offensive, 12—16 Sept. '18; Meuse-Argonne Offensive, 26 Sept.—11 Nov.
- BURNHAM, B. C. (VI) 2d Lt., F. A. Pvt., F. A. 21 Sept. '17; Sgt., 15 Nov.; 2d Lt., 31 Aug. '18. Btry. F, 301st F. A., Camp Devens, Mass., 21 Sept. '17; Camp Taylor, Ky., 25 June '18; Camp Lewis, Wash., 7 Sept. '18—2 Jan. '19.
- BUTLER, J. H. JR. (IV) Sgt., Q. M. C. Pvt., Q. M. C., 12 Dec. '17; Sgt., 2 Aug. '18. Camp Johnston, Fla., 12 Dec. '17; Salvage Co., Q. M. C., Camp Greene, N. C., 16 Apr. '18—14 Mch. '19.
- CAHILL, L. B., JR. (IV) 2d Lt., A. S. A. Driver, American Field Service, 25 June '17; transferred to A. S., Dec.; 2d Lt., A. S. A., June '18. In France, 25 June '17—Mch. '19; Tech Unit, American Field Service, Sect. 526—B, with French Army, Jounaiges (Aisne), supplying ammunition to 6th and 10th French Armies June '17; 28 Aero Sq., Dec.; Issoudun, Aug. '18; Colombey-les-Belle, Dec.; 26th Aero Sq., 3d Pursuit Group, Jan. '19. Chemin des Dames, 22—25 Oct. '17. (Page 86.)
- CALLAHAN, F. J. (VI) Ensign (E.), U. S. N. R. F. E. 1 cl., U. S. N. R. F., 27 May '18; C. M. M., 1 Aug.; Machinist, 3 cl., 15 Nov.; Ensign (E.), 1 Mch. '19. A. E. F., 25 Dec. '18—10 July '19.
- CAMMANN, OSWALD, JR. (XV) 2d Lt., F. A. Pvt., Off. Tr. Camp, 3 June '18; 2d Lt., F. A., 16 Sept. Tr. Camp, Plattsburg, N. Y., 3 June '18; Camp Taylor, Ky., 16 Sept.—16 Dec. '18.
- CAMPBELL, D. W. (XV) 1st Lt., Inf. Provisional 2d Lt., Inf., July '17; 2d Lt., Inf., 25 Feb. '18; 1st Lt., 19 Oct. Army Service Sch., Ft. Leavenworth, Kan., 26 Nov. '17; 1st Inf., Schofield Barracks, Hawaii, 25 Feb. '18; 1st Inf., Camp Lewis, Wash., 11 June, C. O., Co. C, 1st Inf., during strikes in Northwest, guarding hydraulic power plants at Electron and La Grande, Wash., Feb. '19; Camp Devens, Mass., 22 Sept.—25 June '17—1 Oct. (Page 82.)
- CANN, G. W. (XIII) Sea., 2 cl., U. S. N. R. F. In Service, 6 Apr. '18. Sch. for Naval Constructors, Navy Yard, Boston, Mass., 9 Oct. '18—25 Jan. '19.
- CANNELL, J. E. (VI) Pvt., Engr. R. C. Entered Service 20 June '18. S. A. T. C., 14 Oct.—9 Dec. '18.
- CARTER, J. M. JR. (II) 1st Lt., Cav. 2d Lt., Cav., 25 June '17; 1st Lt., 25 Oct. 17th Reg., 15th Div., Cav., 25 June '17 8 Jan. '19.
- CARTER, J. S. (II) Pvt., Engrs. Co. 1, Engr. Off. Tr. Sch., Camp Humphreys, Va., 11 July—27 Nov. '18.
- CARTWRIGHT, R. A. (II) C. Q. M. U. S. N. R. F. (A). In Service, 22 July '18. Flight 34, Naval Aviation Det., M. I. T., 14 Oct.—11 Dec. '18.
- CASSIDY, H. L. (X) Corp., Inf. Pvt., Cav., 15 May '17; Corp., Inf., Aug. '18. Troop K, 2d Cav.; Hq. Troop, 4th Inf. Div., Camp Greene, N. C. 15 May '17. A. E. F., France and Germany, 3 May '18—17; Liaison Agent between 4th U. S. Inf. and 164th French Div.; University of Toulouse, May '19. Aisne-Marne Offensive, 18 July—6 Aug. '18; Vesle Sector, 12 Aug.; Toulon Sector, 6—11 Sept.; St. Mihiel Offensive, 12—15 Sept.; Meuse-Argonne Offensive, 26 Sept.—18 Oct.; Army of Occupation, Nov.—Mch. '19.

TECHNOLOGY'S WAR RECORD

- CASSIDY, J. E. (XV) 2d Lt., F. A. Pvt., Q. M. C., 27 Nov. '17; Sgt., 5 Mch. '18; transferred to F. A., 9 July; 2d Lt., F. A., 16 Oct. 1st Co. Engrs., Jacksonville, Fla., 27 Nov. '17, Camp Taylor, Ky., 9 July '18; Arty. Off. Tr. Sch. of Fire, Ft. Sil, Okla., 16 Oct.—16 Dec.
- CHADWICK, NOEL (X) Lt. (j. g.), U. S. N. R. F. (A.). Q. M. 1 cl., U. S. N. R. F., June '17; Ensign (A.), 1 Nov.; Lt. (j. g.), 1 Oct. '18. 1st Dirigible Class, Goodyear Tire and Rubber Co., Akron, Ohio, June '17; Free and Kite Balloon and Dirigible Pilot; in charge, 2d Dirigible Class, 1 Nov.; Commanding Dirigible Officer, Naval Air Station, Key West, Fla., 11 Jan. '18; convoy and patrol duty, Naval Air Station, Montauk, N. Y., 11 June; Naval Air Station, Cape May, N. J., 11 Dec. '18—8 Jan. '19.
- CHURCH, W. E. (IV) Mr. Gun., C. A. C. Corp., C. A. C., 11 Dec. '17; Mr. Gun., 6 Nov. '18. 65th Arty., C. A. C., San Francisco, Calif., 11 Dec. '17. A. E. F., 28 Mch. '18—1 Feb. '19; 65th C. A. C.; training, Limoges, Apr. '18; La Courtine, 20 July; at Front 77 days. St. Mihiel Offensive (Pont-à-Mousson); Meuse-Argonne Offensive (Montfaucon, 26 Sept. Verdun, Grand Pré, 1 Nov.). See Civilian Record.
- CLAFIN, F. E. (II) Pvt., A. S., 8 Feb.—Aug. '18.
- CLARK, M. H. (II) 2d Lt., A. S. A. Pvt. 1 cl., A. S., 24 Dec. '17; 2d Lt., A. S. A., 20 July '18. Ground School, Princeton, N. J., 24 Dec. '17; Brooks Field, San Antonio, Texas, July, '18—6 Jan. '19.
- CLARKSON, A. B. (XV) Mr. Gun., C. A. C. Hq. Co., 50th Regt., Ft. Monroe, Va., Apr. '18. A. E. F., France, Oct. '18—Mch. '19.
- COHEN, B. S. (VII) Pvt., C. A. Entered Service, 28 Oct. '18; Ft. Warren, Mass., 28 Oct. '18; C. A. Off. Tr. Sch., Ft. Monroe, Va., Nov.—Dec. '18.
- COLBY, L. C. (XV) 2d Lt., C. A. C. Pvt., C. A. C., 21 Mch. '17; Corp.; 2d Lt., Ft. Slocum, N. Y., 21 Mch. '17. A. E. F., 17 Aug. '17—26 Jan. '19; Btry. F, 7th Provisional Regt., C. A. C., Maily-le-Camp, (Aube), 13 Sept. '17; Hvy. Arty. Sch., Maily; 3d Howitzer (8") Regt. Baccarat Sector, 15 Apr. '18; Alsace Sector, 1 June. St. Mihiel Offensive; Meuse-Argonne Offensive.
- COLDWELL, J. S. (VI) Gunnery Sgt., Marine Corps, (A.) 21 Aug. '18. Marine Detachment, Naval Aviation Ground Sch., M. I. T., 21 Aug.—7 Dec. '18.
- CONNERS, N. D. (II) Sgt., Inf. Pvt., 1 cl. Inf., 5 Jan. '18; Corp., 1 Jan. '19; Sgt., 3 Jan. Btry. A, 3d Off. Tr. Sch., Camp Upton, N. Y., 5 Jan. '18; in Base Hosp., Camp Upton, Feb.—Sept.; 5th Co., 152d Depot Brig., 18 Oct. '18—20 July '19.
- COOK, A. A. (IV) Capt., Inf. 2d Lt., Inf., 8 Aug. '17; 1st Lt., 18 Feb. '18; Capt., 13 June. Ft. Leavenworth, Kan., 8 Aug. '17; Adj., 2d Bn., 8th Inf., Camp Fremont, Calif., 19 Nov. A. E. F., 18 Oct. '18—3 June '19.
- COOMBS, R. H. (VII) 2d Lt., F. A. Pvt., Inf., 21 July '18; 2d Lt., F. A., 21 Dec. Co. D, 36th M. G. Bn., 12th Div., 21 July '18; 20th Tr. Btry., F. A. Cent. Off. Tr. Sch., Camp Taylor, Ky., 13 Sept.—21 Dec. '18.
- CORTHELL, H. D. (I) Pvt. 1 cl., Co. F., 23d Engrs., Camp Meade, Md., 4 Nov. '17. A. E. F., 30 Mch. '18—16 June '19. Meuse-Argonne Offensive, 26 Sept.—11 Nov. '18.
- COSGROVE, J. T. (VI) Pvt. (Flying Cadet), A. S. A. Ground Sch., Princeton, N. J., 17 Jan. '18; Camp Dick, Texas, 19 Sept.; Flying, Call Field, Texas, 2 Nov.—14 Dec.
- COYNE, F. J. (IV) Corp., C. A. C. Pvt., C. A. C., 31 Oct. '18; Corp., 10 Nov. Btry. B, 28th C. A. C.
- CREDON, W. J. (I) 2d Lt., A. S. A. Co. I, Off. Tr. Camp, Plattsburg, N. Y., 8 May '17; Sch. of Military, Aeronautics, Princeton, N. J., Mch. '18; Kelly Field, Texas, June; Post Field, Ft. Sil, Okla., Dec.
- CUNNINGHAM, K. M. (II) 1st Lt., A. S. A. Pvt., Off. Tr. Camp, 8 May '17; 2d Lt., A. S. A., 1 Sept.; 1st Lt., 28 Feb. '18. Off. Tr. Camp, Madison Barracks, N. Y., 8 May '17; Ground School, Cornell, 20 July. A. E. F., England and France, 18 Sept. '17—6 Apr. '19; training with British Air Force, Westcliff-on-Sea; with 55th Sq., Independent Royal Air Force in long distance day bombing in Rhine Valley on Coblenz, Duren, Mayence, Stuttgart and other towns, and short work during St. Mihiel and Châteauneuf-Thierry Drives; Airplane Design Div., U. S. Air Service Hq., Paris, 10 Nov. '18. Squadron cited three times by the French and twice by the British, especially for a raid over Frankfort. (Page 205)
- CURRAN, JOHN (VI) Pvt., Inf. Entered Service, 5 Jan. '18. Off. Tr. Camp, Camp Upton, N. Y., 5 Jan. '18, Hq. Co., 305th Inf., 77th Div. A. E. F., 28 Apr. '18—25 Apr. '19. Baccarat Sector; Vesle; Oise-Aisne Offensive; Meuse-Argonne Offensive.
- CURTIS, INGRAHAM (VI) Pvt., M. C. A. E. F., '18—'19; U. S. Base Hosp. No. 19.
- DARLING, BLAKE (X) Pvt., Engr. E. R. C. Pvt., Inf., 29 Mch. '18; M. C., 1 May; Engr. E. R. C., 15 May—15 Dec. '18.
- DAVIDSON, K. S. M. (II) 2d Lt., A. S. A. Pvt., A. S., '17; Cadet, '18; 2d Lt., A. S. A. Army School of Aeronautics, Cornell University, N. Y., Sept. '17; 4th Cadet Sq., Ellington Field, Texas, Jan. '18; 3d Provisional Air Sq., June—Dec. '18. (Page 45)
- DAVIS, C. P. (II) 2d Lt., A. S. A. Pvt. 1 cl., A. S., 21 Dec. '17; 2d Lt. (Pilot), A. S. A., 29 Oct. '18. Ground School, Princeton, N. J., 21 Dec. '17; Camp Dick, Texas, 20 June; Loncke, Ark., 15 July; Course for Pursuit Pilots, Rockwell Field, Calif., 14 Nov. '18—25 July '19.
- DAVIS, G. H. (XV) 2d Lt., A. S. A. Pvt. 1 cl., A. S., 17 Dec. '17; 2d Lt., A. S. A. 18 July '18. Army School of Aeronautics, Cornell University, N. Y., 17 Dec.; Hazelhurst Field, Mineola, N. Y., Oct. '18; Ellington Field, Texas.

REGISTER OF MILITARY RECORDS

- DAVIS, I. W., 1st cl. Sgt., Sig. C. Pvt., Sig. C., 25 Feb. '18; Corp., 1 Sept.; Sgt., 1 Oct.; 1st cl. Sgt., 5 Feb. '19. University of Vermont, 25 Feb. '18; 209th Field Sig. Bn., Camp Sheridan, Ala., in charge of detail to establish world's record for distance of 35 cm. French lights; Chief Inst. in Sig. C. work, 9th Div. Sig. Sch. See Civilian Record.
- DEACON, E. F. (XV) 1st Lt., Engrs. Pvt., Off. Tr. Camp, 12 May '17, 2d Lt., Engrs. 15 Aug.; 1st Lt., 12 June '18. Co. I, 1st Off. Tr. Camp, Plattsburg, N. Y., 12 May '17. Co. C, 301st Engrs., Camp Devens, Mass., Aug. A. E. F., France and Germany, 26 Apr. '18—31 Mch. '19; built artillery dumps in St. Mihiel Salient, worked on lines of communication, reconnaissance, and first and second position wiring; constructed and maintained only pontoon bridge on Moselle River located between Treis and Karden.
- DEANE, ANDREW (II) Ensign, U. S. N. R. F. (A.) '18. Naval Aviation Detachment, M. I. T., June '18; Naval Air Station, Pensacola, Fla., Feb. '19.
- DE BONNEVAL, H. A. (II) with 234th Regt., Inf., Sect. 136, French Army, June '17.
- DERBY, H. S. (XIV). See Class of '21.
- DERR, T. S. (II) Pvt. 1 cl., C. W. S. Pvt., C. W. S., 5 Oct. '18; Pvt. 1 cl., 20 Oct. Long Island Laboratory, Gas Defense Div., C. W. S., 5 Oct. '18—5 Mch. '19.
- DIMMICK, H. E. (X) 2d Lt., A. S. A. Pvt. 1 cl., Aviation Sect., Sig. R. C., 17 Aug. '17; 2d Lt., A. S. A., 21 Feb. '18. School of Military Aeronautics, Oct.; Love Field, Texas, Jan. '18; Flying Inst., Gerstner Field, La., and Carlstrom and Dorr Fields, Fla., until Dec. '18.
- DOTEN, E. F. (II) 2d Lt., Engrs. Pvt., Engr. Off. Tr. Camp, 1 July '18; 2d Lt., Engrs., 11 Jan. '19. Co. 1, Engr. Off. Tr. Sch., Camp Humphreys, Va., 12 Oct. '18—Jan. '19.
- DOUGLAS, A. D. (III) Corp., Q. M. C. In Service, 5 June '17. 1st Regular Div. Sup. Tr., 22 Aug. '17. A. E. F., France, Belgium, and Germany, 22 Apr. '18—5 July '19. Co. C, 430th Sup. Tr. Champagne-Marne Defensive, 17—18 July '18; Aisne-Marne Offensive, 18 July—3 Aug.; St. Mihiel Offensive, 12—16 Sept.; Meuse-Argonne Offensive, 20 Oct.—11 Nov.; Army of Occupation.
- DREW, C. W., JR. (XV) 2d Lt., Marine Corps. Pvt., Marine Corps, 30 July '18; 2d Lt., Jan. '19. Searchlight Bn., League Island, Philadelphia, Pa., 30 July '18; Officers Camp, Quantico, Va., Aug.; Special Inf. Officers Sch., Dec. '18—29 Jan. '19.
- DUFFY, H. L. (XIII) Ensign, U. S. N. R. F. Oiler, U. S. N. R. F., Dec. '17; C. M. M., July '18; Ensign, Jan. '19. Submarine Chaser Unit, Dec. '17; Class 14, Naval Gas Engine School, Columbia University, '18; transferred to Stevens Institute, July; U.S.S. Wabash (Transport Service), '18; Chief Engr. Officer, Mine Sweeper Swain in North Sea, July—Oct. '19.
- DURLAND, R. W. (II) reported with French Army Transport Service, '17; Motor Transport Corps, Base Sect. No. 1, '18; 133d Advanced Ammunition Sect. Gassed and invalidated home, May '18.
- ELLIOTT, J. T. (VI) C. M. M., U. S. N. R. F. Sea. 2 cl., U. S. N. R. F., 9 Apr. '18; C. M. M., 1 Dec. See Civilian Record.
- ELWELL, F. G. (II) Sous-Lt., Arty., French Army. Driver, American Field Service, Apr. '17; Pvt. 2 cl., Foreign Legion, French Army, Jan. '18; Cadet, 15 May; Sous-Lt., 15 Mch. '19. In France, Apr. '17—31 Aug. '19. S. S. U. No. 66, Apr.—30 Sept. '17; evacuated wounded of 17th and 46th French Divs., at Craonne, Chemin des Dames; 1st Regt., Foreign Legion, Jan. '18; 32d Arty. Regt., 12 Feb.; Arty. Sch., Fontainebleau; 2d Group of African F. A. 15 May. Villers Bretonneux, July '18; Moreuil, 8 Aug.; Plesier, 12 Aug.; Noyon, 25 Aug.; La Fère, Sept.; St. Quentin, Oct.; French Army of Occupation, near Wiesbaden, Feb.—31 Aug. '19. Gassed 4 Oct. '18. Croix de Guerre with Silver Star, American Field Service Medal. (Page 288.)
- ERVING, J. M. (X) Pvt., C. W. S. Pvt., Mass. Volunteer Militia, 14 May '16; transferred to F. A., 6 June '17; transferred to C. W. S., 24 Aug. '18. Co. L, 8th Mass., Inf., May '16; 102d F. A. June '17. A. E. F., 23 Sept. '17—31 Mch. '19; Artillery Draftsman, Mch.—Sept. '18; 4th Div. Hq., C. W. S., Casual Co., 23 Jan.—31 Mch. '19. Chemin des Dames, 4 Feb.; Toul Sector, 3 Apr.; Château-Thierry, 4 July; St. Mihiel Offensive; Meuse-Argonne Offensive; Army of Occupation (Bad Bertrich), 20 Nov. '18—20 Jan. '19. Gassed near Raulecourt, 5 June '18.
- EVERIT, R. S. (III) 2d Lt., C. A. R. C. Pvt., C. A. C., 1 Oct. '18; Pvt. 1 cl., 10 Oct.; 2d Lt., C. A. R. C., 26 Jan. '19. 7th Co., C. A. C., Coast Defense of Boston, Mass., 1 Oct. '18; Off. Tr. Camp, Ft. Monroe, Va., 11 Nov. '18—26 Jan. '19.
- FARIST, C. J. (VI) Sea. 2 cl., U. S. N. R. F., 8 Aug. '18—9 May '19.
- FALKENBERG, J. J. (I) 2d Lt., C. A. R. C. Pvt., C. A. C., '18; 2d Lt., C. A. R. C., Jan. '19. Co. G, Training Camp, Ft. Monroe, Va., '18.
- FALKENBERG, R. L. (I) 2d Lt., Engrs. Pvt., Engrs., 12 Nov. '17; 1st Sgt., 26 Mch. '18; 2d Lt., 5 July. Co. F, 23d Engrs., Camp Meade, Md., 12 Nov. '17; 66th Engrs., Laurel, Md., 26 Mch. '18; Engr. Off. Tr. Camp, Ft. Monroe, Va., 6 May; Engr. Repl. Troops, Ft. Leach, D. C., 5 July—25 Nov.
- FARRAND, E. G. (VI) Ord. Sgt., Ord. Corps. Pvt., Ord. Corps., 14 Dec. '17; Corp., Dec. '18; Sgt., Mch. '19; Ord. Sgt., June. Watervliet Arsenal, N. Y., 14 Dec. '17; Co. C, 3d Bn., Provisional Ord. Depot, May '18. A. E. F., 27 May '18—4 July '19; constructing Ord. Repair Shops, Mehun; Ord. Technical Sect. with French Arty., Proving Grounds, Bourges; Electrical Engr., Ord. Repair Shops, Mehun.
- FARRINGTON, A. E. (I) 2d Lt., A. S. A. (R. M. A.) Pvt., Aviation Sect., Sig. C., 15 Jan. '18; 2d Lt., A. S. A. School of Military Aeronautics, Princeton, N. J., Mch. '18; Dallas, Texas, June; Eberts Field, Ark., July—Dec. '18.

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- FARRISEE, W. J. (I) Pvt. 1 cl. (Flying Cadet), A. S. A. Flying Cadet Detachment, Kelly Field, Jan. '18; Dallas, Texas, 1 June; Austin, Texas, 15 Aug.; San Antonio, Nov. '18.
- FASSITT, A. J., JR. (VI) Mr. Sig. Elec., Sig. C. Pvt., Sig. C., 23 Jan. '18; Sgt., Mch.; again Pvt., Apr.; Corp., May; Sgt. 1 cl., July; Mr. Sig. Elec., Jan. '19. Inst. in radio, telephone, telegraph and allied forms of communication, Land Div., Sig. C., Camp Sherman, Ohio, 23 Jan. '18; Co. B, 325th Field Sig. Bn., Apr. A. E. F., 10 June '18—1 Mch. '19; management and installation of telephone systems in front line sectors. Vosges Mountains, Argonne and Marbach-Metz.
- FIELDS, E. S., JR. (I) 2d Lt., Engrs. Corp., Inf., 3 Apr. '17; transferred to Engrs. as 2d Lt., '18. Co. B, 19th Inf., Ft. Houston, Texas, 3 Apr. '17. A. E. F., '18—'19; Co. A, 524th Engrs., Mch. '19; American Red Cross Hosp. No. 3, July.
- FISHER, J. R. (I) Corp. Inf. Pvt., Inf., 18 July '17; Corp., Oct.; Sgt. Maj., 22 July '18 (wounded before promotion became official). Co. A, 23d Inf., 18 July '17. A. E. F., Sept. '17—21 Nov. '18. Verdun Sector; Pont-à-Mousson Sector; Aisne Defensive (Château-Thierry); Aisne-Marne Offensive; Champagne Phase of Meuse-Argonne Offensive. Wounded by machine gun, 4 Oct. '18. (Page 174.)
- FLECKENSTEIN, JACKSON (XV) C. O. M. (A.) U. S. N. R. F., May '18. Student Officer, Seattle, Wash., and Great Lakes, Ill. See Civilian Record.
- FLEMING, G. G. (III) Pvt. (Officer Candidate), M. T. C., Oct. '18.
- FLEWELLING, R. C. (IV) Capt., Inf. Co. A, 19th Inf., San Antonio, Texas, '17; Co. D, 19th Inf., Ft. Bliss, Texas, Mch. '19.
- FORD, A. R. (II) Sca. 2 cl., U. S. N. R. F., 6 Apr. '18. Not called into service on account of poor eyesight.
- *FOWLER, F. M. (V). See Roll of Honor (page 105).
- FREEMAN, O. F. (VI) M. M. 2 cl., U. S. N. R. F. (A.) '18. U. S. Naval Base, Brest, France, Apr. '18.
- FRENCH, G. F., 2d Lt., A. S. A. Pvt. 1 cl., A. S., Sig. C., 10 Oct. '17. 2d Lt., A. S. A., 1 May '18. Ground School, Cornell University, N. Y., 10 Oct. '17; 4th Cadet Sq., Ellington Field, Texas, 18 Jan. '18; Inst. in High Altitude Bombing, 3 June; Inst. in Acrobatic Flying, 1 July; Inst., in Aerial Gunnery, Taliaferro Field, 11 Nov.—19 Dec.
- FRIEDLICH, ROBERT (II) Ensign, U. S. N. R. F. Ambulance Driver, American Field Service, '17; Sea. 2 cl. U. S. N. R. F., 18 Jan. '18; Ensign., S. S. U. 68, with French Army, '17; returned to U. S. A. and entered U. S. N. R. F., Newport, R. I.
- GAIL, G. P., (II) Pvt., Engr. E. R. C., 21 Jan. '18. M. I. T., 21 Jan. '18—25 Sept. '18. See Civilian Record.
- *GARNSEY, A. E. (VI) See Roll of Honor (page 109).
- GAY, G. E. (X) 2d Lt., Engrs. Pvt., Off. Tr. Camp, May '17; 2d Lt., Engrs., Aug. '17. 1st Off. Tr. Camp; Plattsburg, N. Y., May '17; 101st Engrs., 26th Div., Camp Devens, Mass., A. E. F., 1 Sept. '17—1 Aug. '19. Co. B, 101st Engrs.; Engr. on Cons. Base Hosp., Bazoilles-sur-Meuse; Office of Provost Marshal General, Tours, Oct. '18; Asst. P. M., Aix-les-Bains and Grenoble Leave Areas.
- GIBSON, J. W. (XV) 1st Lt., Inf. attached to A. S. Pvt., Off. Tr. Camp, Plattsburg, N. Y., 15 May '17; 310th Inf., Camp Dix, N. J., Dec.; attached A. S., Austin, Texas, Mch. '18; Kelly Field, Texas, June; Post Field, Ft. Sill, Okla., 19 Oct.; Taliaferro Field, Texas, Nov. '18—6 Jan. '19.
- GILBERT, R. H. (VI) Pvt. 1 cl., Sig. C. Entered Service, 19 Mch. '18. Co. C, 115th Field Sig. Bn., 19 Mch. '18. A. E. F., 13 Aug. '18—13 July '19; 115th Field Sig. Bn., 40th Div., 2d Army; repaired telephone instruments and field equipment, 2d Army Sig. C. Dump, during Woivre Offensive; Electrical Engineering Course, Special Sch. of Public Works, Sorbonne, Paris, 1 Mch. '19.
- GILES, H. C. (XV) reported with Co. A, 1st Platoon, 56th Engrs., A. E. F. in '18.
- GILLETT, L. A. (XI) Pvt. 1 cl., Engr. E. R. C., 1 July '18. Engr. Officers' Tr. Sch., Camp Humphreys, Va., Nov. '18.
- GIVEN, F. J. (VI) 2d Lt., Sig. R. C. Pvt., Sig. C., 12 July '18; Sgt.; 2d Lt., Sig. R. C., 4 Jan. '19; re-enlisted as Pvt. and was made Sgt., 11 Jan. '19. 13th Service Co., Camp Vail, N. J., 2 Oct. '18; 3d Serv. Co., Officers' Tr. Detachment, Yale University, 22 Oct.; 13th Service Co., Camp Vail, N. J., 18 Dec.; volunteered for overseas service as German speaking Radio Operator; disch., 29 Mch. '19.
- GLEASON, R. W. (I) 2d Lt., C. A. C. Pvt., C. A. C., 18 June '18; Plotter, Sept.; 2d Lt. 18th Co., C. A. C., Ft. Monroe, Va.
- GODDARD, R. E. (IV) 2d Lt., Aviation Sect., Sig. C. Pvt. 1 cl., R. O. T. C., June '17; 2d Lt., Inf., Aug.; transferred to Aviation Sect., Sig. C., Oct. R. O. T. C., Harvard University, June '17; 322d Inf., Camp Jackson, S. C., Aug.; Aero Observers' Ground Tr. Sch., Austin, Texas, Oct. A. E. F., England and France, '18; took Pursuit Observers' Training, Sch. of Aerial Gunnery, Royal Air Forces, England; Officer in Charge, Aerial Gunnery Sch., U. S. Air Service, Tours, France, June—Dec. '18.
- GOLDTHWAIT, J. A. (II) 1st Lt., A. S. Pvt., Off. Tr. Camp, May '17; 2d Lt., U. S. R., Aug.; 1st Lt., F. A. (N. A.), Dec.; transferred to A. S., Mch. '18. F. A. National Guard, '16—'18; Off. Tr. Camp, Plattsburg, N. Y., May '17; Hq. Co., 303d F. A., Camp Devens, Mass., Aug.; School for Aerial Observers, Okla., Mch., '18; Advanced Gunnery School Mt. Clemens, Mich.; Inst., School for Radio Operators, Houston, Texas, until Jan. '19.
- GOODRIDGE, M. E. (XV) Pvt., Engrs., 29 July '18. 2d Engr. Officers Tr. School, Camp Humphreys, Va., 25 Oct.—27 Nov. '18.

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- GOODWIN, T. L., JR. (II) Ensign, U. S. N. R. F. Sea. 2 cl. U., S. N. R. F., 17 Oct. '18; C. M. M., 1 Dec.; Ensign, 14 June '19. Preliminary Training, Hingham, Mass., 17 Oct. '18; Steam Engr. School, Hoboken, N. J., 16 Mch. '19; U.S.S. Santa Paula, 14 June.
- GRIEBEL, F. W. (I) Pvt., Engr. E. R. C. (inactive), 22 Jan. '18. See Civilian Record.
- GRIFFIN, A. E. (I) Ensign, U. S. N. R. F. Sea. 2 cl., U. S. N. R. F., 16 June '17; C. B. M., 7 Oct.; Ensign, 16 June '18. Ensign Cadet Sch., Harvard University, 16 June '17; Naval Overseas Transportation Service, 17 Jan. '18; U.S.S. Philadelphia (Transport); Aide to Supervisor, Office of Cruiser and Transport Force, Boston, Mass., 1 Dec.; U.S.S. Chew (Destroyer), 6 June—6 Sept. '19.
- GUPPY, J. S. (I) 1st Lt., Inf. Pvt., Engrs., 6 June '17; Mr. Engr. (j. g.), 24 June; 2d Lt., Engr. R. C., 29 Jan. '18; transferred to Inf., N. A., 16 Apr.; 1st Lt., Inf., 15 Aug. 14th Engrs. (Ry.), 6 June '17. A. E. F., 28 July '17—12 Feb. '19; 14th Engrs. assigned to British near Arras, Aug. '17; Army Candidates Sch., Langres, Dec.; Inst. with 14th Engrs., Mch. '18; Casual Officer, Blois; 23d Inf., 2d Div., June; 369th Inf., 1 Aug. Aisne Defensive (Château-Thierry); Aisne-Marne Offensive; Champagne Offensive; Meuse-Argonne Offensive; Sept.—Oct.; Thann Sector, Oct.; Army of Occupation (Mulhouse). Wounded once. Croix de Guerre with Gold Star. (Pages 148, 174 and 176.)
- HADLEY, H. S. (V) Driver, French Ambulance Service, France, '17.
- HALL, R. T. (XI) Pvt. 1 cl., C. A. C. 7th Co., C. A. C., Ft. Warren, Mass., 15 Oct. '18; C. A. Off. Tr. Sch. Ft. Monroe, Va., 31 Oct.—23 Nov. '18.
- HALL, W. T. (X) Corp., Inf. Pvt., Inf., attached 151st Depot Brig., 28 Aug. '18; Corp., 21 Sept. '18; transferred to C. W. S., 1 Oct. '18; transferred to M. I. T. as Inst., 15 Oct. '18.
- HAMMOND, W. S. (I) 2d Lt., A. S. A. Pvt., Inf., Apr. '17; 2d Lt., F. A., 27 Nov.; transferred to A. S., Jan. '18. Harvard Regt., Inf., Apr. '17; 2d Off. Tr. Camp, Leon Springs, Texas, Aug.; F. A., Nov.; graduated, Aerial Gunnery Sch., Houston, Texas, Mch. '18; Inst., Field Arty. and Aerial Gunnery, 27 Nov. '17—Feb. '19.
- HANSON, J. J. (Sp.) 1st Lt., Ord. Corps. Chicago Dist. Office, Carriage Div., Inspection Sect., Ord. Dept., 25 Jan. '18; Asst. Army Inspector of Ord., Minneapolis Steel and Machinery Co., in charge of shop mfg. 155mm. gun carriages, 27 Mch.
- HARTMAN, L. E. (II) 2d Lt., C. W. S. Pvt., C. W. S., 14 Dec. '17; Sgt., 1 Aug. '18; Sgt. 1 cl., 1 Oct.; 2d Lt., 6 Nov. Edgewood Arsenal, Md., 14 Dec. '17—Dec. '18.
- HAWKES, J. R. (I) Capt., Inf. Maine Hv. Arty., 5 Aug. '17; Capt., Inf., 13 Feb. '18. 1st Maine Hv. Arty., 5 Aug. '17; Capt., Inf., 13 Feb. '18. 1st Maine Hv. Arty., 5 Aug. '17; 56th Pioneer Inf., 13 Feb. '18. A. E. F., France and Germany, 4 Sept. '18—27 June '19; Personnel Adj., Hq., 56th Pioneer Inf., 3d Army; 360th Inf., 90th Div., May '19. Meuse-Argonne Offensive; Army of Occupation.
- HAYES, S. J. (VII) Sgt., Sn. C. Pvt., Sn. C., 18 Sept. '18; Sgt., 16 Jan. '19. Water Tank Tn. No. 302, Camp Holabird, Md., 18 Sept. '18; Army Medical Sch., Washington, D. C., 28 Sept.; Asst. to Camp Sn. Engr., Camp Sn. Detachment, Camp Sevier, S. C., 23 Nov. '18—1 Feb. '19.
- HEDIN, C. H. (VI) Pvt. (Ambulance Driver), American Field Service, 2 June '17. Section 66, American Field Service with French Army, 12 June—29 Nov. '17. See Civilian Record.
- HELMRICH, E. R. (Sp.) Pvt., Ord. Corps. Ord. Depot, Ft. Slocum, 24 June '18; Sheffield Detachment, Nitrate Div., Ala., 6 July.
- HENDERSON, R. J. recorded in files at Paris Bureau, in *Technology Review* and on page 85 of the RECORD as member of Tech Ambulance Unit. There is no such person listed in the *Register of Former Students*. See Henderson, R. S., '99.
- HERRICK, C. M. (VI) Pvt. 1 cl., Radio Sect., Sig. C. 3d Service Co., Sig. C. Tr. School, Yale University, 4 Oct.—18 Dec. '18. Recommended for a reserve commission.
- HEWES, F. R. (I) Pvt. (Candidate) C. A. R. C., 11 Oct. '18.
- HILL, E. W. (XV) Capt., Inf. Prov. 2d Lt., Inf., 9 Aug. '17; 1st Lt., Mch. '18 to rank on 9 Aug. '17; Capt., 19 June '18. Ft. Leavenworth, Kansas, Aug. '17; Camp Fremont, Calif., Nov.; Co. G, 12th Inf., Camp Hill, Va., Nov. '18. A. E. F., 20 May '19; to date (3 Dec. '19); 4th Inf., later with Repl. Depot, American Troops, Coblenz.
- HIRSCH, G. B. (II) Pvt., Engrs. Pvt., Engr. E. R. C., 17 Jan. '18. Entered Service, 29 Sept. '18. Co. 7, Engr. Off. Tr. Sch., Engr. Repl. Troops unassigned, Camp Humphreys, Va., Sept.—Nov. '18.
- HOFFMAN, A. G. (VI) Pvt., S. A. T. C. Pvt., Engr. E. R. C., 15 Jan. '18 (inactive); Pvt., S. A. T. C., M. I. T., Oct.—Dec. '18.
- HOLMGREN, R. S. (I) Member, Friends Reconstruction Unit, American Friends Service Comm. in France, '17—'19. Work in Somme and Marne, and Meuse-Ardennes. Chief of Distribution, region around Varennes, seeing that portable houses were unloaded and distributed correctly and completely, '19.
- HOLT, JAMES (II) Pvt., C. A. R. C. Pvt., Engr. E. R. C., 3 July '18; transferred to C. A. C., 12 Oct. C. A. Off. Tr. Sch., Ft. Monroe, Va., 12 Oct.—26 Nov. '18.
- *HOMER, J. W., JR. (XV). See Roll of Honor (pages 112 and 243).
- HOOPER, B. M. (II) Ensign (T), U. S. N. M. M. 2 cl., U. S. N. R. F., 3 Dec. '17; Ensign, U. S. N. R. F., 8 Feb. '18; Ensign (T), U. S. N., 9 June '18. Naval Academy, Annapolis, Md., Dec. '17; U.S.S. Utah, June '18; European waters, Aug.—Dec. '18.
- HOPKINSON, F. J. (X) 2d Lt., A. S. A. Pvt., Aviation Sect., Sig. C., 27 Dec. '17; 2d Lt., A. S. A., '18. San Leon Gunnery School, Ellington Field, Texas, '18; Observer, Bomber and Pilot.

TECHNOLOGY'S WAR RECORD

- HOUGH, A. W. (XIII) Ensign (Engr.), U. S. N. R. F. Sea. 2 cl., U. S. N. R. F., 28 Apr. '18; Ensign (Engrs), Mch. '19. Enrolled in U. S. N. R. F. at M. I. T., Apr. '18; Naval Tr. Camp, Hingham, Mass., Sept.
- HUBBARD, E. R. (VI) 1st Lt., Engrs. Pvt., Engrs., 5 June '17; Corp., 1 Aug.; Sgt., 20 Aug.; Sgt. 1 cl., 1 Nov.; 1st Lt., 5 Mch. '18. Co. C, 7th Engrs., 5th Div., Ft. Leavenworth, Kan., 5 June '17; 3d Engr. Off. Tr. Camp, Camp Lee, Va., 1 Jan. '18; Anti-Aircraft Searchlight Investigation Sect., 488th Engrs., Washington, D. C., 5 Mch. '18—11 Apr. '19.
- HUNT, R. S. (VII) Sgt., F. A. Entered Service, 1 June '17; Corp., F. A., 13 Dec. '17; Sgt., 11 Oct. '18. Mass. N. G., 1 June '17; federalized, 5 Aug. A. E. F., 22 Sept. '17—31 Mch. '19; Hq. Co., 102d F. A. Toul Sector (Seicheprey, Xivray); Pas Fini Sector; Aisne-Marne Offensive; St. Mihiel Offensive; Meuse-Argonne Offensive (Verdun).
- HYDE, C. W. (VI) U. S. N. R. F., 14 May '17. Paymaster's Asst., U.S.S. Galatea, 14 May '17; U.S.S. Barnegat, at Azores, Feb. '18; Paymaster's Asst., U. S. S. Carola; Château, Brest, until Jan. '19.
- INGLIS, G. A. (XIII) Pvt., A. S. 22d Aero Sq., Camp McArthur, Texas, 8 Dec. '17; Student May '18, and after graduation Inst., A. S. Mechanics School, St. Paul, Minn., in charge of airplane construction, maintenance and repair, Standard Aircraft Factory, N. J., Dec.; Handley-Page Mechanic, Repair Depot, Indianapolis, Ind., Feb.—Mch. '19.
- INSLEY, ROBERT (II) Lt. (j. g.), U. S. N. R. F. M. M. 2 cl., U. S. N. R. F., 23 Apr. '18; Mach., 24 July; Ensign, 16 Oct.; Lt. (j. g.), 5 Apr. '19. Pelham Bay, Apr. '18; Navy Steam Eng. School, Hoboken, N. J., May; U.S.S. Standard Arrow (Transport), July; Inst., Engr. School, Sept. '18—June '19.
- IRWIN, G. A. (XV) 2d Lt., M. T. C. Pvt., M. T. C., 13 Dec. '17; Sgt., 2d Lt., 10 Sept. '18. Mechanical Repair Unit, Baltimore, Md., Dec. '17; Asst. to Cons. Engr., M. T. Depot., Washington, D. C., Mch. '18; Head, Boxing and Crating Dept., M. T. C.
- JACKSON, L. A. (XI) Pvt., Engr. Pvt., C. A. C., 29 Oct. '18; transferred to Engr. Off. Tr. Camp, 10 Nov. 29th Co., C. A. C., Ft. Standish, Mass., 29 Oct. '18; Engr. Off. Tr. School, Camp Humphreys, Va., 10-27 Nov. '18.
- JOHNS, A. A. (XI) Sgt., F. A. Pvt., F. A., 5 Jan. '18; Sgt., June. Off. Tr. Camp, Camp Upton, N. Y., Jan. '18; Radio Detail, Hq. Co., 304th F. A. A. E. F., 24 Apr. '18—29 Apr. '19; with 77th Div., in charge of a field radio telegraph outfit, regulating fire. Baccarat Sector; Vesle Sector; Oise-Aisne Offensive; Meuse-Argonne Offensive.
- JOHNSON, R. B. (I) 2d Lt., Engr. R. C. Pvt., Engr. E. R. C., 18 Jan. '18; 2d Lt., Engr. R. C., 1 Feb. '19. On inactive list, M. I. T., 18 Jan. '18; Engr. Off. Tr. Sch., Camp Humphreys, Va., 1 Nov.—1 Feb. '19.
- JOHNSTON, N. P. (III) Pvt., 1 cl., A. S., Apr. '18. Ambulance Driver, '17; Pvt., A. S., '18. Section Sanitaire Americaine 64, with French Army, '17; School of Military Aeronautics, Cornell University, N. Y., Apr. '18. Croix de Guerre.
- JONES, C. C. (VI) 2d Lt., Sig. C. Pvt., Sig. C., 4 Aug. '17; Sgt., 8 Dec.; Sgt. 1 cl., 12 Apr. '18; 2d Lt., 27th Aug. 324th Field Sig. Bn., 4 Aug. '17; Co. A, 6th Tr. Bn., Radio School, College Park, Md., 30 Aug. '18; Engr. Dept., Sig. C., 17 Sept.—5 Dec. '18.
- JONES, H. C. (IV) Pvt., F. A. Co. B, 312th Am. Tn., A. E. F., '18—'19.
- JONES, I. P. (II) 2d Lt., F. A. Pvt., F. A., 5 Sept. '17; Sgt., 1 Dec.; 2d Lt., 22 July '18. Btry. E, 319th F. A., Camp Gordon, Ga., 5 Sept. '17. A. E. F., 19 May '18—19 July '19; Brig. F. A. School, La Courtine, June; Arty. School, Saumur, Aug; 103d F. A., 26th Div. 315th F. A., 80th Div., Jan. '19; University of Bordeaux, Mch. Meuse-Argonne Offensive.
- KAHN, GEORGE (VII) Pvt., Inf., 21 Oct. '18. S. A. T. C., Harvard University, 21 Oct.—4 Dec. '18.
- KARG, E. E. (X) Pvt., Ord. Corps, 8-13 Mch. '17. See Civilian Record.
- KAUPE, A. F. (III) Pvt. 1 cl., M. C. Pvt., M. C., 9 Dec. '17; Pvt. 1 cl., '18. Sn. Sqd. No. 2, 9 Dec. '17. A. E. F., Mch. '18—July '19; Central Medical Dept. Laboratory.
- KEITH, SCOTT (I) Appr. Sea., U. S. N. R. F. Entered Service, 9 Oct. '18. Student in intensive course in Naval Architecture, M. I. T., Sept.—Dec. '18.
- KELLEY, L. A. (VI) 2d Lt., Sig. R. C. Enlisted, Pvt., Sig. C., 13 July '18; entered Service, 1 Oct. '18; 2d Lt., Sig. R. C., 4 Jan. '19; reenlisted as Warrant Sgt., 11 Jan.; 1st Sgt., 1 Mch. 13th Service Co., Camp Vail, N. J., transferred Tr. Detachment, Yale University, Oct. '18; volunteered for German-speaking Radio Group, 13th Serv. Co., Camp Vail, Jan.—3 Apr. '19.
- KELSEY, A. S. (V) Pvt., C. W. S. Pvt., Inf., 3 Sept. '18; transferred to C. W. S., 11 Oct. 17th Co., 5th Bn., 151st Depot Brig., Camp Devens, Mass., 3 Sept. '18; Development Div., C. W. S., Nela Park, Cleveland, Ohio, 11 Oct.—13 Dec. '18.
- KENISON, E. M. (XV) Pvt., F. A., 26 Aug. '18. Btry. D, 1st Regt., F. A. Repl. Depot, Camp Jackson, S. C., 26 Aug. '18; 20th Btry., F. A. Repl. Depot, 16 Oct.; Btry. C, 8th Regt. F. A., 28 Nov.; Btry. C, 60th F. A., 12 Dec. '18—30 Jan. '19.
- *KENNARD, IRVING (XIV). See Roll of Honor (page 104).
- KENNEDY, CHARLES (I, XI) Pvt., Engrs., 5 July '18. Engr. Off. Tr. Camp, Camp Humphreys, Va., Nov. '18.
- KITCHIN, D. W. (V) Sgt. 1 cl., Sig. C. Pvt., Sig. C., 21 May '17; Corp. 15 Sept.; Sgt., 1 Mch. '18; Sgt. 1 cl., 20 June. Co. A, 301st Field Sig. Bn., Camp Devens, Mass., 21 May '17. A. E. F., July '18—July '19; 6th Corps, 2d Army, Metz Sector. Army of Occupation; Villerupt, France, Mch. '19. Regiment received the Croix de Guerre.

REGISTER OF MILITARY RECORDS

- LAFAEAN, R. G. (X) Sgt., C. W. S. Pvt. C. W. S., 27 Aug. '18; Corp., 1 Nov.; Sgt., 18 Dec. Development Div., C. W. S., Cleveland, Ohio, Aug. '18; in charge of Electric Dept., 18 Dec.; Director, Electric Furnace Dept., developing electric furnaces for the activation of charcoal, Dec. '18—Mch. '19.
- LANGILLE, W. O. (VI) 2d Lt., Sig. R. C. Pvt., Sig. C., July '18; 2d Lt., Sig. R. C., '18. 3d Service Co., Sig. C. Detachment, Off. Tr. Sch., Yale University, July '18.
- LAVAGNINO, J. F. (XV) Lt., Inf. Was graduated from U. S. Military Academy, West Point, N. Y., June '19; in Europe, with Class, studying conditions, July—Sept. '19.
- LAW, G. R. (IV) Pvt. 1 cl. (Cadet), Aviation Sect., Sig. C. Kelly Field, Texas, '18; Cadet Detachment, Love Field, Texas, Mch. '19.
- LAWTON, E. H., 2d Lt., F. A. Pvt., Engrs., '17; 2d Lt., F. A., Feb. '18. 117th Engrs., Columbia, S. C., '17; 2d Off. Tr. Camp, Ft. Oglethorpe, Ga., Nov.; 318th F. A., Camp Jackson, S. C., Feb. '18; School for Aerial Observers, Ft. Sill, Okla., July; School of Aerial Gunnery, Mt. Clemens, Mich., Oct. A. E. F., Nov. '18—Mch. '19; Btry. E, 318th F. A.; attached to A. S. as Aerial Observer. 2d Aviation Instruction Center, Tours, Nov. '18; Chatillon-sur-Seine, Jan. '19.
- LEE, F. M. (X) Capt., Inf. Co. B, 10th Regt. Camp Custer, Mich.
- LEE, M. B. (II) Ensign (E.), U. S. N. R. F. Sea. 2 cl., U. S. N. R. F., 6 Apr. '18; C. M. M., 1 Dec.; Warrant Machinist, 27 Mch. '19; Ensign (E.), 5 June. Hingham, Mass., 31 Oct. '18; Pelham Bay, N. Y., 3 Dec.; Navy Steam Engr. School, Hoboken, N. J., 18 Jan. '19; U.S.S. Canandaigua, 6 May—12 June '18.
- LELAND, R. M. (II) 2d Lt., Inf. Pvt., Inf., 6 Sept. '17; Duty Sgt., 15 Oct.; 2d Lt., 15 June '18. 302d Inf., Camp Devens, Mass., 6 Sept. '17; 1st Inf. Co., 3d Off. Tr. Camp, 22 May '18; Inf. Repl. Troops, Camp Lee, Va., 1 June; Depot Brig., Camp Taylor, 14 June. A. E. F., 1 Oct. '18—22 Feb. '19; Co. A, 1st Bn., 814th Pioneer Inf., Marseilles and Toulon.
- LEWIS, R. F. (III) Lt. (j. g.), U. S. N. R. F. (A.). Sea. 2 cl., U. S. N. R. F., 14 Nov. '17; Ensign, 20 June '18; Lt. (j. g.), 1 Oct. Asst. Inst., Military Drill, Naval Aviation Detachment, M. I. T., Nov. '17; Air Patrol, Key West, Fla., June '18—Jan. '19.
- LICHTER, JACOB (I) Pvt., S. A. T. C.
- LIKINS, C. C. (IV) 2d Lt., A. S. A. Flying Inst., Scott Field, Kelly Field, Texas, 30 Nov. '17—6 May '19.
- LITTLE, C. E. (II) Sgt., A. S. A. Pvt., A. S., '17; Cadet, '18; Sgt. Army School of Military Aeronautics, Princeton, N. J., Jan. '18; Aero Sq. 267, Chanute Field, Ill., Apr. A. E. F., before Aug. '18.
- LITTLE, W. H. (III) 1st Lt., Cav. Pvt., Arty., 27 Aug. '17; 2d Lt., Cav., Dec.; 1st Lt., 18. 1st Btry., Arty. Tr. Regt., Ft. Niagara, N. Y., 27 Aug. '17; Troop H, 2d Cav., Ft. Ethan Allan, Vt., 16 Dec. A. E. F., 22 Mch. '18—6 Aug. '19; Hq. Troops, 1st Army Corps, 30 June '18; Adj. to C. O., Luchon, Mch. '19. Champagne-Marne Defensive; Aisne-Marne Offensive; St. Mihiel Offensive; 8th Cav., Ft. Bliss, Texas, Nov. '19.
- LLOYD, T. M. (VI) Pvt., Sig. E. R. C., 25 Jan.—16 Dec. '18.
- LONG, W. J., Lt., A. S. A. Pvt. 1 cl. (Cadet), A. S., Mch. '18; Lt., A. S. A. Army School of Military Aeronautics, Cornell University, N. Y., '18; Chanute Field, Texas, until 18 Dec. '18.
- LUNQUIST, D. A. (XIII) M. M. 2 cl., U. S. N. R. F. Naval Training Station, Hingham, Mass., 9 Oct. '18; Bu. of Cons. and Repair, Charlestown Navy Yard, Mass., 30 Oct. '18—27 Jan. '19.
- MCCARTEN, G. V. (X) 2d Lt., Engr. R. C. Pvt., Engr. E. R. C., 20 July '18; 2d Lt., Engr. R. C., 11 Jan. '19. Engr. Off. Tr. Sch., Camp Humphreys, Va., 31 Oct. '18—11 Jan. '19.
- MCCARTHY, L. A. (VI) Ensign, U. S. N. R. F. (A.). Ambulance Driver, S. S. U. 62, with French Army, Oct. '17; Naval Aviation Detachment, M. I. T., Apr. '18; Naval Air Service, Jan. '19.
- MCCLENTIC, H. H., JR. (I) 2d Lt., F. A. R. C. Pvt. 1 cl., F. A., 25 Aug. '18; 2d Lt., F. A. R. C., 8 Dec. F. A. Off. Tr. Sch., Camp Taylor, Ky., 25 Aug.—8 Dec. '18.
- MCCLOSKEY, L. C. (XIV) C. M. M., U. S. N. R. F.
- MCCLURG, V. B. (IV) 2d Lt., Engrs. Co. H, Engrs., Washington Barracks, D. C., '18; Co. A, 313th Engrs., '19.
- MCCREERY, G. W. (I) C. Q. M., U. S. N. R. F. (A.). 26 July '18. Flight 34, Naval Aviation Detachment, M. I. T., 26 July—16 Nov. '18.
- McINTOSH, A. H. (II) Ord. Sgt. (sr. gr.), Ord. Corps. Entered Service 20 Aug. '18; Sgt., Dec. '18. Co. H, 3d Prov. Off. Tr. Camp, Camp Hancock, Ga., 20 Aug. '18—20 Jan. '19.
- McKAY, R. A. D. (II) 1st Lt., Engrs. Color Sgt., Engrs., Apr. '17; 2d Lt.; 1st Lt. A. E. F., '17—'19; Hq. Detachment, 117th Engrs. Army of Occupation, Brohl, Germany, Mch. '19. (Page 170.)
- McKECHNIE, DONALD (III) Candidate, Off. Tr. Sch. Co. K, 302d Inf., Camp Devens, Mass.; Co. C, 301st Engrs., F. A. Central Off. Tr. Sch., Camp Taylor, Ky., Aug. '18.
- McKENNEY, W. R. (II) 2d Lt., C. A. C. Pvt., Engr. E. R. C., 18 Jan. '18; transferred to C. A. C., 22 July; 2d Lt., C. A. C., 22 Nov. 16th Co., Coast Defense of Chesapeake Bay, Ft. Monroe, Va., 22 July '18; Co. A, C. A. Off. Tr. Sch., 15 Sept.—22 Nov.
- McKIRDY, H. S. (I) Capt., C. A. C. 2d Lt. C. A. C., 7 Aug. '17; 1st Lt., Oct. '17; Capt., 7 Mch. '18. C. A. School, Ft. Monroe, Va., 9 Aug. '17. A. E. F., 18 Dec. '17—20 Nov. '19; Hv. Arty. Sch., Mailly, France, Jan. '18; French Tractor Arty. School, Mch.; 50th C. A. C., Apr.; Orientation School, Limoges, June; target practice, La Courtine, 25 July; Casual Co., Blois, Feb. '19; Adj., Gievres, 1 Sept.; Paris, 12 Nov. St. Mihiel Offensive; Meuse-Argonne Offensive.

TECHNOLOGY'S WAR RECORD

- McLAUGHLIN, E. R. (VI) 2d Lt., Sig. R. C. Pvt., Sig. C., 1 Oct. '18; 2d Lt., 18 Dec. '18. 3d Service Co., Sig. C. Detachment, Yale University, 1 Oct.—18 Dec. '18.
- McMORRAN, A. M. (II) Lt., Royal Air Force. Cadet, Royal Air Force, 4 Jan. '18; Lt., 19 Sept. Cadet Wing-Royal Flying Corps, Toronto, Canada, 4 Jan. '18. C. E. F., England, Sept. '18—July '19; South Carleton near Lincoln.
- MACMULLIN, R. B. (X) Corp., C. W. S. Entered Service, 13 May '18; Co. E, 1st Gas Regt. (Offensive), C. W. S., Ft. Myer, 13 May '18. A. E. F., 14 July '18—24 Jan. '19. St. Mihiel Offensive, 12 Sept. '18; Verdun Sector, 23 Sept.—11 Nov. '18. See Civilian Record.
- MACFARLAND, A. W. (II) Sgt., C. W. S. Pvt. 1 cl. Inf., 19 Sept. '17; Corp., May '18; Sgt., Aug.; transferred to C. W. S., M. Co. 302d Inf., Camp Devens, Mass., 19 Sept. '17; Development Sect. on Gas Masks Gas. Defense Service, Akron, Ohio, 1 Nov.; Field Testing Sect., C. W. S., 1 Oct. '18—1 Feb. '19.
- MAGRAW, G. F. (II) Ensign, U. S. N. R. F. Sea. 2 cl., U. S. N. R. F., 9 Oct. '18; C. M. M., 7 Nov.; Warrant Machinist, 8 Mch. '19; Ensign, 5 June. Enlisted, 6 Apr. '18; Hingham Trainee Camp, Mass., 9 Oct.; Pelham Bay, N. Y., Nov.; Naval Steam Engr. School, Hoboken, N. J., Dec.; U.S.S. Caesar, Norfolk, Va., Mch. '19; Hoboken, May.
- MALOY, C. B. (IV) Corp., F. A., Btry. A, 103d F. A., 26th Div., 8 May '17. A. E. F., Oct. '17—Apr. '19. Ansanville Sector (Seicheprey); Aisne-Marne Offensive (Chateau-Thierry); St. Mihiel Offensive; Meuse-Argonne Offensive (Verdun).
- MANDELBAUM, ISADORE (I) Sea. 2 cl., U. S. N. R. F., Sept. '18. S. N. T. C., M. I. T., Sept. '18. Organized Naval Unit Orchestra.
- MARDOIAN, H. H. (I) Pvt. 1 cl., Engrs. Pvt., Engrs., 3 June '18; Pvt. 1 cl., 16 Sept. 301st Engrs. (formerly 76th Div.), 4th Corps, 3 June '18. A. E. F., 14 July '18—24 June '19. St. Mihiel Offensive, 12-13 Sept.; Woivre Sector, 14-25 Sept.; Meuse-Moselle Sector, 29 Sept.—11 Nov.; Army of Occupation, 17 Nov. '18—11 May '19. See Civilian Record.
- MARKUS, F. E. (IV) C. C. M., U. S. N. R. F. C. M. 1 cl., U. S. N. R. F., 22 Dec. '17; C. C. M., 1 Sept. '18. Entered Service, 22 Dec. '17; A. E. F., 29 Jan. '18—14 June '19; in charge, construction of U. S. Naval Air Station, La Trinite-sur-Mer, (station had four kite balloons for patrolling and spotting submarines in and about Quiveron Bay); Transport Service, 14 June—13 Sept. '19.
- MARSHALL, H. F. (II) 1st Lt., A. S. A. Pvt. 1 cl., Aviation Sect., Sig. C., 11 June '17; 2d Lt. (R. M. A.), 4 Aug.; 1st Lt., A. S. A., 3 Oct. School of Military Aeronautics, M. I. T., 11 June '17; Hazelhurst Field, Mineola, N. Y., 4 Aug. A. E. F., 9 Jan. '18—21 July '19; Second in Command, 50th Aero Sq., 3d Aviation Tr. Center, Issoudun, Jan. '18; Engr. Officer and Pilot, 1st Flight, 13th Aero Sq., 4 May; Pilot, 88th Aero Observation Sq., 28 June; 1st Lieut., Deputy Flight Comdr., Flight Comdr. and Transportation Officer; Grenoble University, Mch. '19. Aisne Defensive, 25 May—5 June '18; Toul Sector, 28 June—7 July; Champagne-Marne Defensive and Aisne-Marne Offensive, 7 July—6 Aug. (1st Corps); Oise-Aisne Offensive, 6 Aug.—10 Sept. (3d Corps); St. Mihiel Offensive, 11-17 Sept. (5th Corps); Meuse-Argonne Offensive, 17 Sept.—11 Nov. (3d Corps); Army of Occupation, Treves, Germany, Nov. (7th Corps). Citation from Air Service Comdr., A. E. F. Squadron also cited. (Page 155.)
- MARTIN, G. R. (III) 2d Lt., F. A. F. A. Off. Tr. Camp, Camp Stanley, Texas, '17; Arty. Observer attached to Aviation Sect., Sig. C., Dec. '17. A. E. F., '18—'19; Candidate Arty. School, Saumur, June '18; Organization and Tr. Center No. 4, Oct.; Base Hosp. No. 93, Cannes, Apr. '19. Wounded. Croix de Guerre. (Page 149.)
- MARTINSON, O. S. (I) 2d Lt., C. A. R. C. Pvt. 1 cl., C. A. C., 28 Aug. '18; 2d Lt., C. A. R. C., 20 Dec. '18. 7th Co., C. A. C., Ft. Warren, Mass., 28 Aug. '18; Co. E, 6th Off. Tr. Camp, Ft. Monroe, Va., 3 Oct.; Coast Defense of Chesapeake Bay.
- MAY, E. D. (II) 2d Lt., Engr. R. C. Pvt., Engr. E. R. C., 16 July '18; 2d Lt., Engr. R. C., 15 Feb. '19. Engr. Off. Tr. Sch., Camp Humphreys, Va., Nov. '18—Feb. '19.
- MAYER, ALBERT (I) 2d Lt., C. A. R. C. Pvt., C. A. C., 18 June '18; Sgt., 1 Sept.; 1st Sgt.; 2d Lt., C. A. R. C., 22 Nov. '18. Ft. Monroe, Va., 18 June '18; 17th Co., Coast Defense of Chesapeake Bay, 8 July; Co. A, C. A. School, Ft. Monroe, Va., 14 Sept.—22 Nov. '18.
- MEANS, R. S. (I) Pvt., F. A. Btry. A, 301st F. A., Camp Devens, Mass., '17; 7th Co., Ft. Leavenworth, Kan., May '18.
- MERRILL, H. C. (VII) 2d Lt., Aviation Sect., Sig. R. C. Pvt. 1 cl. (Cadet), A. S., 7 Jan. '18; 2d Lt., A. S., Sig. R. C., 4 Feb. '19. School of Military Aeronautics, M. I. T., 18 May '18; Camp Dick, Texas, 17 Aug.; Ellington Field, Texas, 21 Sept. '18—12 Feb. '19.
- MERRILL, J. O. (IV) Capt., C. A. C. 2d Lt., C. A. C., 26 Oct. '17; 1st Lt., 26 Oct. '18; Capt., 14 June '18. Off. Tr. Sch., Ft. Monroe, Va., Oct. '17; School of Anti-Aircraft Arty., Ft. Monroe, May '18; Officer, 36th Arty., Oct. '18; Personnel Adj. during demobilization, Dec. '18.
- MERRILL, L. H. (VI) 2d Lt., Aviation Sect., Sig. C., Supply Officer's Asst., Langley Field, Hampton, Va., '17.
- MERRITT, R. A. (III) Ensign, U. S. N. R. F. (A). C. Q. M., U. S. N. R. F. (A.), 15 Mch. '18; Ensign, 10 Jan. '19. Naval Aviation Detachment, Ground School, M. I. T., 15 Mch. '18.
- MICHEILS, M. A. (XV) U. S. N. R. F., Apr. '18; Co. Comdr., S. N. T. C., M. I. T., Oct. '18.
- MILLER, W. B. (II) Pvt., Canadian Tank C. 1st Bn., Canadian Tank C., Ottawa, Canada, 29 Apr. '18. C. E. F., England, 3 June '18—20 May '19; Tank C. Tr. Center, Bovington, Dorset.

REGISTER OF MILITARY RECORDS

- MINARD, D. P. (XIII) Capt., Cav., 1st Lt., Cav., 9 Aug. '17; Capt., 9 June '18. 8th Cav., Marfa, Texas, 9 Aug. '17; Troop L, 8th Cav., Indio, Texas, Mch. '19. Skirmish with Mexican Bandits, Pilares, Mex., Mch. '18. (Page 283.)
- MITCHELL, R. W. (II) Appr. Sea., U. S. N. R. F., S. N. T. C., M. I. T., 1 Oct.—17 Dec. '18. See Civilian Record.
- MONTGOMERY, R. A. (V) Sgt., C. W. S. Pvt., C. W. S., 16 May '18; Corp., 15 Nov.; Sgt., 15 Jan. '19. Astoria Detachment, Gas Defense Div., C. W. S., 16 May '18—21 Feb. '19.
- MOODY, E. G. (II) Pvt., Aviation Sect., Sig. C. Motor Mechanic and Aeroplane Rigger, 268th Aero Sq., Mch. '18. A. E. F., England, 16 July—7 Dec. '18; stationed at Dover with bombing squadron which raided Germany at night; on "Defense of London" Field, Nov.
- MOORE, J. R. (XV) Pvt. 1 cl., M. C. Entered Service, 13 July '17. Base Hosp. No. 44, (Mass. Homeopathic Hosp. Unit), 10 Mch. '18; Camp Dix, N. J. A. E. F., 6 July '18—20 Apr. '19; Pougues-les-Eaux, near Nevers, Aug. '18—Jan. '19.
- MULLER, A. L. (IV) Sgt., C. W. S. Graphic Charts Bu., Gas Defense Div., C. W. S.; Hq., New York City, 29 Oct. '18—26 June '19. See Civilian Record.
- NELSON, J. H. (VI) 2d Lt., A. S. A. Pvt. 1 cl., F. A. 20 June '17; transferred to Sig. E. R. C., Sept.; 2d Lt., A. S. A., July '18. U. S. Military Academy, 20 June '17; O. R. C., Harvard University, Dec. '17; 32d Aero Sq., Camp Dick, Texas, Apr. '18. A. E. F., England and France, Aug. '18—Jan. '19; sch. for night bombing pilots, and acceptance field for U. S. Govt. Handley-Page Tr. School, Ford Junction, England.
- NEWCOMB, RAYMOND (XV) Ensign (Engr.), U. S. N. R. F. Fireman 3 cl., U. S. N. R. F., 10 Jan. '17; C. M. M., 22 Aug. '18; Warrant Machinist, 2 Dec.; Ensign, 8 Feb. '19. Mine-sweeping duty, Massachusetts Bay, '17; on furlough at M. I. T., Oct.; Naval Steam Engr. School, Hoboken, N. J., Oct. '18; transport duty, 8 Feb. '19.
- NOYES, M. S. (XIII) Sea. 2 cl., U. S. N. R. F. Entered Service, 9 Apr. '18. Hingham, Mass., 9 Oct. '18; Charlestown Navy Yard, Nov. '18—25 Jan. '19. See Civilian Record.
- NUTTER, K. L. (II) 2d Lt., Engrs. Engr. Repl. Troops, Camp Humphreys, Va., 5 Aug. '18.
- NUTTING, C. L. (V) Pvt., Inf. 3d Co., 1st Provisional Bn., 156th Depot Brig., 28 Aug. '18; Camp Sevier, S. C., 26 Sept.; furloughed as Inst. in Chemistry, S. A. T. C., M. I. T., 7 Oct. '18—17 Jan. '19.
- O'CONNOR, A. M., Capt., Inf. In Service, '17. A. E. F., France, '18. Gassed and wounded.
- ORCUTT, J. W. (X) Capt., C. A. C. 2d Lt., C. A. C., 9 Aug. '17; 1st Lt., Capt. '18. 7th Co., Ft. Monroe, Va., 9 Aug. '17. A. E. F., 12 Dec. '17—29 Nov. '18; Hv. Arty. School, Mailly, Jan. '18; 3d Bn., Prov. Howitzer Regt., 65th C. A. C., 12 Apr.; 1st Co., Coast Defense of New Bedford, Mass., Apr. '19. Bussang, (Vosges) Sector (Alsace), Apr.; St. Mihiel Offensive; Meuse-Argonne Offensive.
- OSGOOD, F. G. (XV) Lt. (j. g.), C. C., U. S. N. R. F. Sea. 2 cl., U. S. N. R. F., 14 Oct. '17; C. Q. M. (A), 1 Jan. '18; Ensign, 29 Mch.; Lt. (j. g.), 1 Oct. Transferred to C. C., U. S. N. R. F., July '19. Naval Aviation Student Inspector, M. I. T., Oct. '17; Curtiss Aeroplane Works, Buffalo, N. Y., Jan. '18; in charge Naval Airplane Inspection, Burgess Co., Marblehead, Mass., Apr.; Naval Cons., Lighter-than-air Aircraft Construction, Bu. of Cons. and Repair (A), Washington, D. C., Jan. '19.
- OSGOOD, W. R. (II) Pvt., Engr. E. R. C., 17 Jan. '18. See Civilian Record.
- PAGE, A. E. (XV) 2d Lt., Q. M. C. Pvt., Inf., 15 May '17; 2d Lt., Q. M. C. Aug. 1st Off. Tr. Camp, Plattsburg, N. Y., 15 May '17; in charge of warehouses, Camp Lee, Va., 16 Aug.; Transport Q. M., Army Cargo Transport Munwood, 7 Dec.; in charge three warehouses, Newport News, Va., 11 May '18; Transport Q. M., U. S. S. West Haven, 17 July '18—9 Mch. '19. Attacked by submarine about 180 miles off Cape Race, Newfoundland, 31 Aug. '18. (Page 231.)
- PAGE, SHERWOOD (II) Pvt., C. A. C., 2 Nov. '18. 14th Co., Coast Defense of Boston. See Civilian Record.
- PARKER, BENJAMIN (I) Corp., Engr. Pvt., Engrs., 3 June '18; Corp., 11 Aug. Co. E, 301st Engrs., Camp Devens, Mass., 3 June '18. A. E. F., 14 July '18—20 June '19. St. Mihiel Offensive; Toul Sector; Army of Occupation.
- PARKER, F. A. (VI) 2d Lt., Sig. R. C. Pvt., Sig. C., 15 July '18; Sgt., 18 Dec.; 2d Lt., Sig. R. C., 4 Jan. '19. 13th Service Co., Camp Vail, N. J., 15 July '18; 3d Serv. Co., Sig. Off. Tr. Sch., 22 Oct.; German Speaking Radio Personnel, 18 Dec. '18—11 Mch. '19.
- PARKS, G. U. (VI) Lt., A. S. A. Entered Service, 16 June '17; A. E. F., France, Nov. '17—July '19.
- PAULSEN, C. H. (II) Lt. (j. g.), U. S. N. R. F. M. M. 2 cl., U. S. N. R. F., 6 Apr. '17; C. M. M., July; Ensign, Jan. '18; Lt. (j. g.), 1 Apr. '19. U. S. S. Wachusett, Submarine Patrol 548, 20 Apr. '17; Naval Aviation Detachment, M. I. T., 10 Aug.; Inspector of Engr. Material, Curtiss Aero and Motor Corp., Hammondsport, N. Y., Jan. '18; Engr. Officer, Naval Aircraft Storehouse, Gloucester, N. J., Mch. '19.
- PAYNE, K. C. 1st Lt., A. S. A. Harvard Regt., '17; Sq. 14, Aviation School, M. I. T.; Mineola, N. Y. A. E. F., '18—'19; 20th Aero Sq., 1st Day Bombardment Group. Meuse-Argonne Offensive. Missing in Action, 5 Nov. '18. In prison, Karlsruhe; escaped. Distinguished Service Cross. (Page 136.)
- PEASE, R. H., (IV) Sgt., Inf. Pvt. Inf., Sept. '17; Corp., Oct.; Sgt. Dec. Co. L, 304th Inf., Camp Devens, Mass., Sept. '17. A. E. F., 8 July '18—19 Feb. '19; 14th Co., Inf., Off. Tr. Camp, La Valbonne.
- *PELTIER, P. D. (VII). See Roll of Honor (page 129).

TECHNOLOGY'S WAR RECORD

- PENHALLOW, J. H. (I) 2d Lt., F. A. Pvt., F. A., '13; Sgt., 9 Apr. '17; 2d Lt., 26 Nov. '17. A. E. F., 9 Sept. '17—30 Aug. '19; Hq. Co., 101st F. A.; Aide to Chief of Arty., 1st Div., 1 Dec. '18—19 Aug. '19. Toul Sector (Seicheprey, 20 Apr. '18); Champagne-Marne Defensive, 15-18 July; Aisne-Marne Offensive, 18 July—4 Aug.; St. Mihiel Offensive; Meuse-Argonne Offensive; Army of Occupation.
- PERKINS, E. F. (X) C. Q. M., U. S. N. R. F. (A). Commonwealth Pier, Boston, 8 July '18; Naval Aviation Detachment, Ground School, M. I. T., 29 July; Student Flight Officer, Naval Air Station, Miami, Fla., 28 Oct.—23 Nov. '18.
- *PERO, DONALD (II). See Roll of Honor (page 10*).
- PHELPS, C. W. (X) Pvt., Co. A, S. A. T. C., M. I. T., 10 Oct.—17 Dec. '18. See Civilian Record.
- PIERCE, E. F. (II) enlisted in Aviation, Sept. '18, but was not called.
- PINKNEY, WILLIAM, JR. (XV) Ensign, U. S. N. R. F. Q. M., U. S. N. R. F., May '17; Ensign, '18. U.S.S. Spartan, mine sweeping, May '17; U.S.S. Achilles (Collier); Communication Officer, U.S.S. Santa Ana (Transport). Lost half of right thumb in a wreck.
- POLSON, C. G. (VI) Pvt. 1 cl. (Cadet), A. S. Camp Dick, Texas, 1 June '18; Princeton Ground School, 12 July; Camp Dick, Texas, 21 Oct.; Ellington Field, Texas.
- PORCHER, F. D. (I) C. Q. M. (A), U. S. N. R. F., '18. Flight 34, Naval Aviation Detachment, M. I. T.
- PUTNAM, H. M. (I) 2d Lt., F. A. Pvt., F. A., 29 May '18; 2d Lt., 16 Oct. F. A. Repl. Depot, Camp Jackson, S. C., 29 May '18; F. A. Cent. Off. Tr. Sch., Camp Taylor, Ky., 5 July; Inst. in Topography and the use of fire control instruments, School of Reconnaissance, Camp Taylor, Ky., 16 Oct. '18—6 Jan. '19.
- PUTNAM, J. P. (II) Pvt., Engr. E. R. C. Engr. Branch, M. I. T., 24 Jan.—1 Oct. '18.
- QUICK, L. M. (XV) C. Q. M., U. S. N. R. F. (A), '18. Co. 24, Naval Aviation Detachment, M. I. T., 30 May '18; Bayshore, 29 Sept.—26 Nov. '18.
- RANNEY, B. M. (X) Corp., Sig. C. Pvt., Sig. C., 30 July '17; Corp., 1 Mch. '19. Co. E, 317th Field Sig. Bn., Camp Devens, Mass., 30 July '17. A. E. F., 9 June '18—6 June '19. St. Mihiel Offensive 12-16 Sept. '18; Meuse-Argonne Offensive 26 Sept.—11 Nov. (Laid telephone line to 37th Div. near Montfaucon, 26-27 Sept.) Battalion received Army Corps Citation.
- REID, A. L. 2d Lt., C. A. C. Pvt., C. A. C., Apr. '18; 2d Lt., Sept. Training Camp, Ft. Monroe, Va., Apr. '18. A. E. F., Oct. '18—Mch. '19; Co. B, 54th C. A. C.
- REIS, J. W., JR. (III) Pvt., Engr. E. R. C. Entered Service, 24 Jan. '17. Waiting orders to report to Engrs. Officers Tr. Camp, Camp Humphreys, Va., when the armistice was signed.
- REYNOLDS, A. B. (VI) Pvt., Engr. R. C., 5 July '18. Inactive service.
- REYNOLDS, F. P. (X) 2d Lt., F. A. Pvt., F. A., 5 Jan. '18; Sgt., 22 Apr.; 2d Lt., 12 July. Off. Tr. Camp, Camp Upton, N. Y., 5 Jan. '18. A. E. F., 10 June '18—19 Jan. '19; Arty. Sch., Saumur, July; Hv. Arty. School, Angers, 1 Oct.; Inst. of Arty., Orientation and Training Center, Clermont-Ferrand, 10 Nov.
- RHODES, P. L. (XIII) Pvt., Engr. E. R. C. In Service Jan. '18—Sept. 18 at M. I. T. See Civilian Record.
- RICHARDSON, E. A. (II) Pvt., Engrs., 5 Aug. '18. Engr. Off. Tr. Sch., Camp Humphreys, Va., 18 Oct.—11 Dec.
- RICHARDSON, L. A. (XV) 1st Lt., Royal Flying Corps (British). 2d Lt., 1 July '17; 1st Lt., Apr. '18; Acting Capt., Jan. '19. Training in Canada, July '17. C. E. F., Nov. '17—July '19; London, England, Nov. '17; with 74th Sq. in France. Inst. and Flight Comdr., Scotland, after discharge from hospital. Flanders Sector in March Defensive, '18; Battle of Kemmel Hill; Ypres Front. Wounded in a "Dog Fight," 15 miles over the lines, and crashed within the British lines, 19 July '18.
- RODGERS, K. F. (II) Corp., Engrs. Pvt., Engrs., 5 Oct. '17; Corp., Apr. '18. 35th Co., Depot Brig., Camp Devens, Mass., 5 Oct. '17; 90th Co., Overseas Casuals, Jan. '18. A. E. F., Mch. '18—2 Feb. '19; 116th Engrs.; Co. A, 1st Gas Regt. (30th Engrs.), Apr. '18. Projector Gas Operations, Bois de Jery, 6-18 June; Gaschny Sector, 18 July; Tete du Violu, Anould Sector, 5 Aug.; Hartmannsweller-kopf, Vosges, 24 Aug.; St. Mihiel Offensive, 12-16 Sept.; Meuse-Argonne Offensive, 26 Sept.—18 Oct. Gassed, 18 Oct. '18.
- ROMMER, HENRY (II) Pvt., Engr. R. C., 22 July '18. Intensive course in Naval Architecture, M. I. T.
- ROOT, B. A. (XIII) Engineman 2 cl., U. S. N. R. F. Appr. Sea, U. S. N. R. F., 16 July '17; Fireman, 3 cl., 2 cl., and 1 cl.; Engineman 2 cl., Mch. '19. Tr. Stations, Newport, R. I., Submarine Base, New London, Conn., and Brooklyn Navy Yard; U.S.S. President Grant (Transport), Feb. '18—Oct. '19. (Page 87.)
- *ROOT, G. W. (X). See Roll of Honor (page 113).
- RUSSELL, W. K. (II) 2d Lt., F. A., 27 Aug. '18. F. A. Repl. Troops, unassigned.
- SACHE, E. L. (VI) C. M. M., U. S. N. R. F. M. M. 2 cl., U. S. N. R. F., 10 Mch. '17; M. M. 1 cl., June '18; C. M. M., May '19. Patrol Service, Halifax to Key West, 9 Apr. '17; U. S. Submarine Chaser 154, Tampa, Fla., Oct. '19.
- ST. JOHN, L. D. (II) Pvt., Engrs., 3 Aug. '18. Co. 1, Engr. Off. Tr. Sch., Camp Humphreys, Va., 10 Oct.—27 Nov. '18.
- SANFORD, D. C., JR. (IV) 2d Lt., C. A. O. R. C. Pvt. 1 cl., C. A. C., 13 Sept. '18; 2d Lt., C. A. R. C., 24 Dec. 9th Co., Ft. Adams, R. I., 13 Sept. '18; 6th Tr. Camp, C. A. C., Ft. Monroe, Va., Oct.
- SANSBERRY, J. C. (IV) 2d Lt., Inf. Commissioned, Oct. '18. Inst., S. A. T. C., Virginia Military Institute, Lexington, Ky., Oct.—27 Dec. '18.
- *SANTOS, A. H. (II). See Roll of Honor (page 102).

REGISTER OF MILITARY RECORDS

- SAUNDERS, E. E. (VI) Ensign, U. S. N. R. F. Sea. 2 cl., U. S. N. R. F., 2 Apr. '18; C. M. M., 3 Nov.; Warrant Machinist, 4 Apr. '19; Ensign, 12 June. Transport Service, Apr.—June '19.
- SAUNDERS, W. F., JR. (XV) Driver, American Field Service, June—Oct. '17. Engr. E. R. C., transferred to S. A. T. C., M. I. T., June—Dec. '18.
- SAVAGE, R. H. (X) Ensign, U. S. N. R. F. Entered Service, 25 Apr. '18; Sea. 2 cl., U. S. N. R. F., 26 June '18; C. B. M., 19 Aug.; Ensign, 12 Dec. '18. Hingham Naval Tr. Station, Mass., 4 June '18; Wakefield Rifle Range, 6 July; Bumkin Island Tr. Station, 28 July; Officer Material School, Harvard University, 19 Aug.; Bd. of Trial Tests, Rockland, Me., Dec.; Bumkin Island, 25 Apr. '19; U. S. S. Aeolus (Transport), 1 May—1 Aug. '19.
- SCHWARTZ, E. L. (VI) Pvt., Engr. C., 1 July '18.
- SCOFIELD, E. E. (VI) 2d Lt., A. S. A. Pvt. 1 cl., Aviation Sect., Sig. C., 26 Oct. '17; 2d Lt., A. S. A., 7 Aug. '18. Kelly Field No. 2, Texas.
- SCOTT, R. W. (XV) Sgt., Tank C. Ambulance Driver, American Field Service, 30 May '17; transferred Ambulance Service, U. S. A., 2 Sept. '17; transferred Tank C., 19 Mch. '18; Corp., 1 July; Sgt., 19 July. S. S. U. 72 with French Army, 30 May '17; Co. A. 327th Bn., Tank C., 19 Mch. '18. St. Mihiel Offensive; Meuse-Argonne Offensive. Wounded by shrapnel, Aprémont, 1 Oct. '18.
- SCRANTON, C. W. (IV) Ensign, U. S. N. R. F. (A). Sea. 2 cl., U. S. N. R. F. '18. Tr. Station, Pelham Bay, N. Y., '18.
- SCULLY, J. B. (III) 1st Lt., Inf. Pvt., 23 Sept. '17; Sgt., 5 Jan. '18; 2d Lt., 1 June; 1st Lt., 18 Sept. Sup. Co., 301st Inf., Camp Devens, Mass., 23 Sept. '17; Off. Tr. Sch., Camp Devens, 5 Jan. '18; 6th Casual Detachment, Camp Lee, Va., 5 May; Inst. in bayonet fighting, calisthenics, and athletics, Central Off. Tr. Sch., Camp Lee, Va., 1 July—29 Nov.
- SELYA, H. P. (X) Pvt., C. A. C., 22 Oct. '18—15 Nov. '18. Awaiting transfer to C. W. S. at time of armistice.
- SHAW, P. M. (IV) 2d Lt., A. S. A. Pvt. 1 cl., A. S. A., 5 Feb. '18; 2d Lt., A. S. A., 13 Dec. '18. Camp Dick, Texas, Mch. '18; Ground School, Cornell, N. Y., June; C. A. Tr. Sch., Ft. Monroe, Va., 12 Oct.; Aerial Observer for Hv. Arty., 13-20 Dec. '18.
- SHEELINE, P. D. (IX) 2d Lt., A. S. A. Enlisted as Pvt. 1 cl., A. S., 9 Feb. '18; 2d Lt., A. S. A. Pilot, California Aviation Corps, May—22 Aug. '17; Inst., Naval Aviation Detachment, M. I. T.; Ground Sch., and Flying Sch., 9 Feb. '18.
- SHERMAN, B. H. (X) Pvt., Engr. E. R. C., May—Oct. '18. See Civilian Record.
- SHIPPEY, W. B. (XV) Lt., Cav., Troop B, 15th Cav., Nov. '17. A. E. F., Mch. '18—July '19. St. Mihiel Offensive.
- SHULTZ, E. C. (XV) Corp., Engrs. 56th Engrs. (Searchlight Regt.), 24 June '18. A. E. F., 9 July '18—25 Feb. '19; Toul Sector, 1st Army Front, 1 Oct.—1 Dec. '18.
- SLOTNIK, ISADOR, (I) Sea., Naval Engr. Reserve, U. S. N. R. F., 8 Aug.—17 Dec. '18.
- SMITH, F. G. C., JR. (XV) 2d Lt., Aviation Sect., Sig. R. C. Pvt. 1 cl. (Cadet), A. S. A., 8 June '18; 2d Lt., A. S., Sig. R. C., 11 Mch. '19. School of Military Aeronautics, M. I. T., 25 May '18; Camp Dick, Texas, 21 Aug.; Scott Field, Ill., 13 Nov.; Payne Field, Miss., 4 Dec.; Park Field, Tenn., 20 Jan.—15 Mch. '19.
- SMITH, J. H. Pvt. 1 cl., Engrs. Entered Service, 30 Apr. '17. Co. D, 101st Engrs., Camp Devens, Mass., 25 July '17. A. E. F., 25 Sept. '17—'19. Chemin des Dames Sector; Toul Sector; Aisne-Marne Offensive; St. Mihiel Offensive; Meuse-Argonne Offensive (Verdun).
- SMITH, M. A. (VI) Pvt. Engr. E. R. C., 4 Feb.—20 Nov. '18. Never called to active service. See Civilian Record.
- SMITH, M. P. (I, XIII) Sea. 2 cl., U. S. N. R. F. In Service, 23 Apr. '18. Naval Unit, Special Course in Naval Architecture, M. I. T., 18 Oct.—17 Dec. '18.
- SMITH, R. S. (XI) Pvt., C. A. C. 24th Co., Coast Defense of Boston, C. A. C. Ft. Heath, 26 Oct. '18; 14th Co., 14 Nov.; 15th Co., Ft. Andrews, Mass., 20 Nov.—14 Dec. Sent to C. A. Off. Tr. Sch., Ft. Monroe, Va., but refused admission as school was closed to new men on account of signing of the armistice. Disch. 14 Dec. '18.
- SMITH, VAN D. C. (IX) Ensign, U. S. N. R. F. (A). Safety Pilot, Navigation School, Pensacola, Fla., May '18.
- SNOW, W. B. (XV) reported C. M. M., U. S. N. R. F.
- SOARS, E. A. (VI) Appr. Sea., 1 cl., U. S. N. R. F. Appr. Sea. 2 cl., U. S. N. R. F., 1 Oct.; Appr. Sea. 1 cl., Dec. S. N. T. C., M. I. T., 1 Oct.—17 Dec. '18.
- SOUTHWICK, B. H. (II) Pvt., Engr. E. R. C., 2 Feb.—Dec. '18. Intensive Naval Architecture Course, M. I. T.
- STEHLER, R. B. (X) 2d Lt., F. A. Pvt., Off. Tr. Camp, 5 July '18; 2d Lt., F. A., 16 Sept. Off. Tr. Camp, Plattsburg, N. Y., 5 July '18; 35th Tr. Btry., F. A. Cent. Off. Tr. Sch., Camp Taylor, Ky., 26 Sept.—28 Dec. '18.
- STEVENS, JOHN 3d (XV) Pvt., C. W. S. Pvt., Engrs. R. C., 1 Aug. '18. Transferred to C. W. S. Defense problems, Research Div., C. W. S.; research work with Arthur D. Little, Inc., Cambridge, Mass., on smoke filter for 1919 model gas mask, 1 Aug.—20 Dec. '18.

TECHNOLOGY'S WAR RECORD

- STUART, KIMBERLY (IV) Ensign, U. S. N. R. F. (A). Ambulance Driver, American Field Service, 19 Aug. '16; transferred U. S. N. R. F. (A), Sept. '17; Ensign, U. S. N. R. F. (A), Oct. '18. Sect. 4, American Ambulance, France, Aug. '16; Sous-Chef and later Chef of Sect. 10; Salonika and Albania, attached to 76th Div., French Army, for seven months; Lds. for Q. M., Naval Aviation Ground School, France, Sept. '17; Naval Aviation Station, Porto Corsini, Italy. Verdun, six months, '16; Battle of the Lakes, Albania, Mch. '17; flying in Northern Adriatic, July—11 Nov. '18. Croix de Guerre; Italian War Cross; Divisional Citation. (Pages 150 and 285.)
- STUBENRAUCH, E. A. (IV) Sgt., Engrs. Pvt., Engrs., 22 May '18; Corp., Oct.; Sgt., 7 Feb. '19. 4th Engrs (Ry.) 22 May '18. A. E. F., 4 July '18—28 July '19; 4th Ry. Engrs., 13 Div., Zone of Advance.
- SULLIVAN, C. R. (X) 1st Sgt., C. A. C. Pvt., C. A. C., 17 Dec. '17; Corp., 18 Mch. '18; Sgt., July; 1st Sgt., 10 Sept. Ft. Greble, R. I., 17 Oct. '17; C. A. Sch., Ft. Monroe, Va., 5 Sept.—26 Nov. '18.
- SVENSON, C. L. (II) Ensign, U. S. N. R. F. C. M. M., U. S. N. R. F., 30 Oct. '18; Machinist, 6 Mch. '19; Ensign, 12 June. Naval Engr. Sch., Hoboken, N. J., 30 Oct. '18—12 June '19.
- SWASEY, P. F. (IV) Pvt., Engrs. Enlisted, 5 Feb. '18; Engr. Off. Tr. Sch., Co. 1, 1st Repl. Regt., Camp Humphreys, Va., 21 Oct. '18—27 Nov. '18.
- TABER, S. H. (X) Capt., C. A. C. 2d Lt., C. A. C., 24 Aug. '17; 1st Lt., 16 Nov.; Capt., 13 Feb. '18. Ft. Monroe, Va., 3 Sept. '17; Co. B, Coast Defense of Narragansett Bay, R. I., 15 Dec. '17; Ft. Randolph, Coast Defense of Cristobal, Canal Zone, 22 Feb. '19.
- THOMAS, C. E. (II) Lt., Royal Flying Corps (British). B. E. F., England, 31 Jan. '18; Hooten, near Chester, England, Apr. '18.
- THOMPSON, P. R. (X) C. M. M., U. S. N. R. F. M. M. 1 cl., U. S. N. R. F., June '18; C. M. M., 1 Mch. '19—Chemist, Naval Ammunition Depot, Hingham, Mass., June '18 to date (11 Aug. '18).
- THURBER, J. P. (XI) 2d Lt., F. A. F. A., unattached, 8 Jan. '18. A. E. F., Apr. '18—'19. Severely wounded.
- TILLSON, E. M., Midshipman, U. S. N. U.S.S. San Diego, '18; reported missing when ship was sunk, 19 July but landed safely; Midshipman, Naval Academy, Annapolis, Md., 18 Sept. '18.
- TODD, J. M. (X) Ensign, U. S. N. R. F. Sea. 2 cl., U. S. N. R. F., 15 June '17; Ensign, 15 Oct. 1st Naval Dist. Cadet School, M. I. T., 15 June '17; Ex. Officer, U.S.S. Dupont, on coast patrols and convoy duty from Boston to New York, base at New London, Conn 15 Oct.; C. O., U.S.S. Blakely, 3 Sept. '18; Communication and Watch Officer, U.S.S. Powhatan (formerly German Liner Hamburg), on transport duty between U. S. and France, 3 Mch.—8 July '19.
- TRAVERS, F. A. (X) Pvt., M. C. 27 Aug. '18. 156th Depot Brig., 27 Aug. '18; Yale Army Laboratory School, New Haven, Conn., 28 Sept.; Base Hosp., Camp Jackson, S. C., 16 Dec. '18—'19.
- TRIBOU, R. E. (I) Pvt., Engrs. 27th Co., 7th Bn., 151st Depot Brig., Camp Devens, Mass., 2 Sept. '18; Co. B, 212th Engrs., 9 Oct. '18—28 Jan. '19.
- VAN NESTÉ, RAPHAEL (XIV) Q. M. 1 cl., Engr. Corps, U. S. N. R. F. Flight A., U. S. N. R. F. (A), May—Sept. '17; returned to M. I. T., Sept. '17; re-entered Navy Engr. Corps, Oct. '18. See Civilian Record.
- VOGT, W. H., JR. (II) Pvt., Engr. Off. Tr. Sch., Camp Humphreys, Va., 26 Jan.—27 Nov. '18.
- WALWORTH, W. F. (XI) Pvt., Engr. E. R. C., 8 July '18. See Civilian Record.
- WARD, J. R., Pvt., S. A. C. T.
- WARREN, A. L. (VI) Sgt., Inf. Pvt., Inf., 21st Sept. '17; Sgt., '18. Co. C, 302d M. G. Bn., Camp Devens, Mass., 21 Sept. '17. A. E. F., June '18—Aug. '19.
- *WASGATT, H. C. (X). See Roll of Honor (page 94).
- WAY, D. D. (VI) Pvt., Sig. C., '18. Studying Radio Communication, M. I. T., '18; 13th Serv. Co., Camp Vail, N. J., Oct.; Co. G, Sig. C. Detachment, Yale University, Nov. '18.
- WEAVER, L. H. A. (II) Sgt. 1 cl., T. C. Pvt., Inf., 4 Sept. '17; Corp., 1 Mch. '18; transferred to Engrs., 11 Mch.; Regt. changed to Transportation Corps, 10 Dec.; Sgt. 1 cl., T. C., 25 May '19. M. G. Co., 312th Inf., 78th Div., 4 Sept. '17; 3d Provisional Co., 3d Provisional Recruit Bn., 1st Div., 9 Nov. A. E. F., 24 Jan. '18—5 July '19; Special Casual Co., attached to 163d Inf., 61st Div., 14 Feb. '18; Co. F, 19th Engrs. (Ry.), Nevers, 11 Mch.; Co. F, 19th Regt., T. C., Sept.; 108th Co., 19th Grand Div., T. C., 10 Dec.; 110th Co., 5 Feb. '19.
- WEBBER, EATON (II) C. M. M., U. S. N. R. F., 5 Oct. '18. U. S. Naval Steam Engr. School, Pelham Bay, N. Y., 5 Oct. '18—18 Jan. '19.
- WELCH, W. G. (II) C. Q. M., U. S. N. R. F. (A). Naval Tr. Station, Charleston, S. C.
- WELLS, R. K. (X) Midshipman 1 cl., U. S. N. Midshipman 3 cl., U. S. N., 9 Aug. '17; Midshipman 1 cl., June '19. Naval Academy, Annapolis, Md., 9 Aug. '17.
- WEYMOUTH, H. S. (I) Sgt., Q. M. C. Pvt., Inf., 1 Oct. '18; Sgt., Q. M. C., 14 Feb. '19. 151st Depot Brig., Camp Devens, Mass., 1 Oct. '18; Utilities Detachment, Cons. Div., 24 Nov.; Q. M. C., 15 Feb.—21 May '19.
- WHITAKER, M. M. (X) Pvt., Engr., E. R. C. 20 Aug. '18. See Civilian Record.
- WHITON, H. R. (VI) Sea., 2 cl., U. S. N. R. F., 8 Apr. '18.
- *WILLIAMS, R. G. See Roll of Honor (page 116).
- WILSON, H. E. (I) 2d Lt., Engr. R. C. Pvt., Engr. E. R. C., July '18; 2d Lt., Engr. R. C., 1 Feb. '19. Co. 1, Engr. Off. Tr. Sch., Camp Humphreys, Va., 4 Nov. '18—1 Feb. '19.
- WINSLOW, A. F., Lt., A. S. A. A. E. F., France and Germany, '18. Reported missing after aerial combat over German lines, 31 July '18. Wounded and in prison camp, Treves, Germany.

REGISTER OF MILITARY RECORDS

- WISWALL, G. H., JR. (XV) 2d Lt., C. A. R. C. Pvt., C. A. C., 4 Oct. '18; 2d Lt., C. A. R. C., 30 Jan. '19.
Coast Defense of Boston, 4 Oct. '18; C. A. Sch., Oct. '18—30 Jan. '19.
- WOLFF, LOUIS (VII) Pvt., S. A. T. C. Pvt., S. A. T. C., Harvard University, 21 Oct. '18.
- WRIGHT, K. A. (XV) 2d Lt., C. W. S. Pvt., Ord. Corps, Dec. '17; transferred to Mr. Engr. (jr. gr.), C. W. S.,
Aug. '18; 2d Lt., Sept. Fort Meyer, Va., Dec. '17; Washington, D. C.; Filling Plant, Edgewood Arsenal,
Md., Jan. '18—Feb. '19.
- WYSE, F. O. (II) Sea., 2 cl., U. S. N. R. F., 4 June '18. Bumkin Island, Boston Harbor, Sept.—6 Dec. '18.
- YOUNG, H. F. (XV) Pvt., C. W. S. Pvt., M. D., 1 Jan. '18; transferred to C. W. S., 12 Aug. Lakehurst Prov-
ing Grounds, N. J., 1 Jan.—24 Dec. '18.
- ZIMMERMAN, H. A., JR. (X) 2d Lt., Inf. Pvt., Military Police, 6 Oct. '17; Sgt., 20 Apr. '18; 2d Lt., Inf.
1 June '18. Co. B, 308th M. P., 6 Oct. '17; transferred to Inf., 1 June '18. A. E. F., 28 Oct. '18—6 Mch. '19.

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- ABBOTT, N. G., JR. (II) 2d Lt., C. A. C. Off. Tr. Camp, Ft. Monroe, Va., 17 Oct. '18—2 Jan. '19.
- ACKER, C. D. (I) Pvt., Engrs. Engr. Off. Tr. Camp, Camp Humphreys, Va., '18.
- AKERS, K. F. (XV) Pvt., S. A. T. C.
- ALEXANDER, C. E. (II) Pvt., S. A. T. C., M. I. T.
- ALLEN, L. H. (VI) Appr. Sea., S. N. T. C., M. I. T., 1 Oct.—17 Dec. '18. See Civilian Record.
- ANDERSON, G. W. (I) Sea. 2 cl., U. S. N. R. F. Enlisted, 10 Apr. '18; S. N. T. C., M. I. T., 10 Oct.—18 Dec. '18.
- ASH, P. D. (XV) 2d Lt., Aviation Sect., Marine Corps. Gunnery Sgt., Class 5, Naval Aviation Detachment,
M. I. T., 17 June '18; Marine Flying Field, Miami, Fla., 31 Aug. '18—10 Jan. '19.
- ATWATER, A. C. (X) Pvt., S. A. T. C., M. I. T., 3 Oct.—15 Dec. '18. See Civilian Record.
- BANGRATZ, E. G. (VI) Pvt., S. A. T. C., M. I. T.
- BARKER, J. C. (XV) Gunnery Sgt., Aviation Sect., Marine Corps. Naval Aviation Detachment, M. I. T.,
July '18; Marine Flying Field, Miami, Fla., Nov. '18—Jan. '19.
- BARNES, G. H. (V) Pvt., Engrs. Co. K, 4th Bn., 23d Engrs., '18. A. E. F., '18—'19.
- BARRON, W. N. (III) Pvt., S. A. T. C., M. I. T.
- BARTHOLOMEW, J. R. (II) Appr. Sea., S. N. T. C., M. I. T.
- BATES, H. F. (X) Pvt., S. A. T. C., M. I. T.
- BATES, J. H. (I) 2d Lt., Aviation Sect., Sig. C. Pvt., Inf., '17; 2d Lt., Aviation Sect., Sig. C., '18. 301st Inf.,
Camp Devens, Mass., '17; Taliaferro Field, Camp Hicks, Texas, Dec. '17.
- BEAN, K. D. (II) Pvt., S. A. T. C., M. I. T.
- BECKETT, M. M. (X) Sgt., C. W. S. Pvt., C. W. S., Aug. '18; Corp.; Sgt. Camp Taylor, Ky., Aug. '18; Hq.
Development Div., C. W. S., Cleveland, Ohio, Sept.—Dec. '18. See Civilian Record.
- BENNET, H. H. (I) 2d Lt., F. A. Pvt., F. A., 12 May '17; 2d Lt., 15 Aug. '17. 341st F. A., 12 May '17; 1st
R. O. T. C., Ft. Riley, Kan.; Btry. E, 59th F. A., 15 Aug. '17—7 Dec. '18.
- BERG, L. F. (II) reported in Aviation Sect., Sig. C., Camp Dick, Dallas, Texas, '18.
- BERKO, P. M. (I) Pvt., S. A. T. C., M. I. T.
- BIBBER, H. W. (VI) Pvt., S. A. T. C., M. I. T., 11 Oct.—Dec. '18. See Civilian Record.
- BIGELOW, E. C. S. (XV) 1st Lt., Amer. Red Cross. Pvt., American Field Service, July '17; 1st Lt., Amer.
Red Cross, Oct. '17. In France, July '17—Aug. '18; with Dept. of Canteens at the front with French Red
Cross, chiefly in Verdun Sector. Croix de Guerre. (Page 147.)
- BLACKMER, F. H. (XV) Corp., S. A. T. C., M. I. T., 10 Oct.—9 Dec. '18.
- BLACKWELL, L. E. (II) Pvt., S. A. T. C., M. I. T.
- BLAKE, A. H. (II) Appr. Sea., S. N. T. C., M. I. T.
- BLISS, GEORGE (VI) 2d Lt., F. A. R. C. Pvt. (Candidate), F. A., 19 Aug. '18; 2d Lt., F. A. R. C., 4 Dec. '18.
Cent. Off. Tr. Sch., Camp Taylor, Ky., 22 Aug.—4 Dec. '18.
- BLODGETT, J. H. (X) Pvt., C. A. C. 21st Co., C. A. C. '18.
- BOCHER, FREDERICK (I) Pvt., S. A. T. C., M. I. T.
- BOND, C. L. (II) 2d Lt., A. S. A. Pvt., 1 cl., Aviation Sect., Sig. C., 6 Dec. '17; 2d Lt., A. S. A. 30 July '18.
Ground School, Cornell University, 6 Dec. '17; Camp Dick, Texas, 9 Feb. '18; Aerial Gunnery School. Mt.
Clemens, Mich. A. E. F., 3 Sept. '18—Feb. '19; 7th Aviation Instruction Center, Clermont-Ferrand,
Sept. '18.
- BOOTH, R. D. (VI) Appr. Sea., U. S. N. R. F., 1 Oct.—17 Dec. '18.
- BORIGHT, W. N., reported 1st Lt., Royal Flying Corps (British), '18.
- BOWDITCH, F. C., JR. (XV) Cadet Sgt., S. A. T. C. Co. C, S. A. T. C., M. I. T., 30 Sept.—9 Dec. '18. See
Civilian Record.

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- BOWER, H. G. (XV) Appr. Sea, S. N. T. C., M. I. T., 1 Oct.—17 Dec. '18. See Civilian Record.
- BOYDEN, L. E. (XIV) Pvt., S. A. T. C., M. I. T.
- BOYER, W. W. (III) Pvt., Engr. R. C., 1 Feb. '18.
- BRADLEY, F. L. (II) Sgt., S. A. T. C., 1 Oct.—Dec. '18.
- BRADLEY, R. I. (XV) Appr. Sea, S. N. T. C., M. I. T.
- BRAGDON, S. B. (XV) Lt., F. A. Pvt., F. A., 29 Aug. '18; Lt., 11 Dec. '18. Off. Tr. Sch., Camp Taylor, Ky., 29 Aug.—11 Dec. '18.
- BRAGG, E. H. (II) Pvt., S. A. T. C., M. I. T.
- BRAY, C. C. (XV) Pvt., 1 cl., Engrs. American University, Washington, D. C., '17; Co. A, 2d Bn., 20th Engrs., Mch. '18. A. E. F., '18—'19; University of Toulouse, July '19.
- *BRECK, F. P. See Roll of Honor (page 115).
- BRICKETT, E. M. (II) Pvt., S. A. T. C., M. I. T.
- BRITTON, F. S. (II) Pvt., S. A. T. C., M. I. T.
- BRODRICK, R. W., Ensign, U. S. N. R. F. Appr. Sea, U. S. N. R. F., July '18; C. B. M.; Ensign.
- BROECKMANN, HERMAN (I) Pvt. (Candidate), C. A. C. C. A. Off. Tr. Camp, Ft. Monroe, Va., Sept. '18.
- BROWN, C. E. (I) Ensign, U. S. N. R. F. Sea. 2 cl., U. S. N. R. F., 2 Apr. '18; Q. M. 3 cl., and transferred Naval Auxiliary Service, 27 Dec. '18; Ensign, 25 Apr. '19. Bumkin Island Training Station, First Naval Dist., 2 Apr. '18; transferred to Naval Auxiliary Service, 17 Dec. '18; transport service, May—Aug. '19.
- BROWN, D. P. (XIII) Pvt., S. A. T. C., M. I. T.
- BROWN, G. I. (II) Pvt., S. A. T. C. Pvt., Engr. E. R. C., 2 July '18; Pvt., S. A. T. C., M. I. T., 26 Nov. '18. See Civilian Record.
- BROWN, P. S. (XV) Pvt., S. A. T. C., M. I. T.
- BROWN, W. H. (XIII) Ensign, U. S. N. R. F. (A). Naval Aviation Detachment, M. I. T., Dec. '17; Naval Air Station, Chatham, Mass., Apr. '18.
- BRUNO, H. J. (XV) 1st Sgt. U. S. Tr. Detachment, State College for Teachers, Albany, N. Y., '18.
- BUCKEY, P. B. (III) Appr. Sea, S. N. T. C., M. I. T.
- BUGBEE, HAROLD (XV) Pvt., S. A. T. C., M. I. T.
- BUNKER, F. J. (X) Pvt., S. A. T. C., 1 Oct. '18.
- BURDELL, E. S. (XV) 2d Lt., Inf. Pvt., Inf., 18 July '18; 2d Lt., 26 Sept. '18. Personnel School, Plattsburg Barracks, N. Y., 16 Sept. '18; Adj., S. A. T. C., St. Bonaventure, N. Y., '18—10 Jan. '19.
- BURKE, A. W. (XV) 2d Lt., C. A. R. C. S. A. T. C., M. I. T., 10 Oct. '18; C. A. Off. Tr. Sch., Ft. Monroe, Va., 18 Oct.; commissioned, 3 Jan. '19.
- BURNHAM, L. H. (II) Pvt. 1 cl., A. S. A. School of Military Aeronautics, Cornell University, N. Y., 5 Nov. '18; 82d Aero Sq., Austin, Texas, 23 Nov.—23 Dec. '18.
- BURR, R. G. (VI) Appr. Sea. S. N. T. C., M. I. T., 1 Oct.—17 Dec. '18.
- BUTLER, A. M. (IV) C. M. 1 cl., U. S. N. R. F. (A). A. E. F., U. S. Naval Air Station, Gujan, Gironde, France, July '18.
- BYRNE, P. J., JR. (X) Pvt., S. A. T. C., M. I. T.
- CALDWELL, H. B. (X) Appr. Sea. (Cadet), U. S. N. R. F. (A). Naval Aviation Detachment, M. I. T., Nov. '18—Jan. '19.
- CAMERON, E. J. (III) Cook, M. C. Entered Service, 13 June '17. A. E. F., 11 July '17—22 June '19. Harvard Base Hosp. No. 5, attached to B. E. F., U. S. Ambulance Co. 159, Feb. '19.
- CAPPS, C. B. (XV) Pvt. F. A. Entered Service, Sept. '18; F. A. Cent. Off. Tr. Sch., Camp Taylor, Ky., Oct. '18.
- CARLETON, C. D. (X) Sgt., S. A. T. C., M. I. T., 1 Oct.—9 Dec. '18.
- CARLSON, C. E. (X) Pvt., S. A. T. C., 10 Oct. '18.
- CARROLL, E. V. (II) Pvt., S. A. T. C., M. I. T.
- CASEY, B. F. (II) reported in F. A., Mch. '18.
- CHAFFIN, W. L. (XV) Appr. Sea, S. N. T. C., M. I. T., Oct.—18 Nov. '18.
- CHAMBERS, L. B. (VI) Lt. Col., C. A. C. Permanent rank, Capt., C. A. C. Entered Service, 25 Sept. '08; Lt.-Col., Oct. '18. A. E. F., Div. Sig. Officer, 6th Div., 12 July—3 Oct. '18.
- *CHIDSEY, N. C. See Roll of Honor (page 123).
- CLARK, B. J. (X) 2d Lt., F. A. Pvt., S. A. T. C., 5 July '18; 2d Lt., F. A., 16 Sept. '18. Co. L, 3d Bn., 1st Regt., S. A. T. C., Plattsburg Barracks, N. Y., 5 July '18; 35th Tr. Btry., F. A. Cent. Off. Tr. Sch., Camp Taylor, Ky., 26 Sept.—14 Dec. '18.
- CLARK, E. K. (IV) Pvt., S. A. T. C., M. I. T.
- CLARK, W. A., JR. (X) 1st Lt., C. A. C. 2d Lt., C. A. C., 12 Nov. '17; 1st Lt., 20 Dec. '17. 74th C. A. C., 12 Nov. '17. A. E. F., 23 Sept. '18—19 July '19.

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- COCHRAN, A. P. (XV) 2d Lt., Aviation Sect., Marine Corps. Ground School, M. I. T., '18; Marine Aviation Field, Miami, Fla.
- COFREN, W. L. (XV) Pvt., S. A. T. C., 10 Oct. '18.
- COLLINS, H. C. (X) Corp., S. A. T. C. Co. A, S. A. T. C., Sept. '18.
- COLTON, R. B. (VI) Lt.-Col. (T), C. A. C. Permanent rank, Capt., C. A. C. Entered Service, 4 Nov. '10.
- COUCH, H. R. (X) Cadet Sgt., S. A. T. C. Pvt., Engr. E. R. C., 26 Jan. '18; transferred to S. A. T. C., Oct. '18. Corp., S. A. T. C., 14 Oct. '18; Sgt., S. A. T. C., M. I. T., 14 Oct.—17 Dec. '18. See Civilian Record.
- COUGHLIN, E. J. (IV) Pvt., S. A. T. C., M. I. T.
- COUSINS, EDWARD (X) Pvt., S. A. T. C., M. I. T.
- COYLE, J. H. (II) Sgt., S. A. T. C., 1 Oct. '18.
- CROSBY, E. D. (X) Pvt., S. A. T. C., M. I. T., '18.
- CROSS, G. L. (XV) C. Q. M., U. S. N. R. F. (A). Entered Service, 10 June '18. Naval Air Station, Bay Shore, L. I., N. Y.
- CROWLEY, J. W. A., JR. (II) Pvt., S. A. T. C., M. I. T.
- CUSICK, W. M., 1st Lt., Ord. Corps. Entered Service, 1 July '17; Frankford Arsenal, Pa., 1 Aug. '17; C. O., Ord. Depot, Philadelphia, Pa., 1 Oct. A. E. F., 13 Sept. '18—15 June '19; Munitions Officer with Railway Arty.; Chief Ord. Officer in charge of four areas for demolition of enemy ammunition, with 1st and 2d Armies, after armistice.
- CUTTER, G. H. (II) Pvt., S. A. T. C., M. I. T.
- DAGHLIAN, H. K. (VI) Pvt., M. C. Camp Devens, Mass., '17. A. E. F., '18—'19; Hq., Medical Detachment, 12th Engrs.
- DAVIDSON, H. O. (II) Pvt., S. A. T. C. Pvt., Engr. E. R. C. 21 Jan. '18; transferred to S. A. T. C., Oct. Co. Q, S. A. T. C., M. I. T., Oct.—Dec. '18.
- DEAL, H. B. (VI) Platoon Comdr., S. N. T. C. E. 1 cl. (Radio), U. S. N. R. F., Apr. '17; transferred to S. N. T. C., Oct. '18. Great Lakes Training Station, Ill., Apr. '17; Cleveland Naval Radio Station, Ohio, Apr.; resumed studies at M. I. T. as civilian, Oct.; S. N. T. C., M. I. T., Oct.—Dec. '18.
- DEAN, J. L., Sgt., Inf. Pvt., Inf., '17; Sgt. '18. 5th Co., Tr. Branch, Depot Brig., Camp Lee, Va.
- DE MARS, P. A. (VI) Mr. Engr. (jr. gr.), Engrs. Pvt., Engrs., 5 Oct. '17; Sgt. 1 cl., 1 Jan. '18; Mr. Engr. (jr. gr.), 1 Feb. '19. 307th Engrs., 82d Div., Camp Gordon, Ga., 5 Oct. '17. A. E. F., 18 May '18—15 June '19; Off. Tr. Camp, Langres, installing and operating electric lighting plants in 10th Training Area, after 11 Nov. Sagney Sector, Woevre Front, 25 June '18; Toul Sector, 1 Aug.; Pont-à-Mousson, Marbach Sector, 14 Aug.; St. Mihiel Offensive; Meuse-Argonne Offensive (Fléville, Chatel Chéhéry, 7 Oct., and St. Juvin).
- DES MARAIS, G. F. (II) 2d Lt., C. A. R. C. Pvt., C. A. C., 10 Oct. '18; 2d Lt., C. A. R. C., 3 Jan. '19. Co. G, C. A. Off. Tr. Sch., Ft. Monroe, Va., 10 Oct. '18—Jan. '19. See Civilian Record.
- DE MEULENAER, JOHN (I) Petty Officer, 3 cl., U. S. N. R. F. Sea. 2 cl., U. S. N. R. F., 13 Apr. '18; Petty Officer, 3 cl., Nov. S. N. T. C., M. I. T., 10 Oct.—19 Dec. '18. See Civilian Record.
- DEWEY, W. F. (II) Pvt., S. A. T. C., M. I. T.
- *DEYETTE, J. C. (XIV) Pvt., S. A. T. C., M. I. T. Died as result of accident 1920.
- DOANE, F. P., JR. (X) Pvt., S. A. T. C. R. O. T. C., Plattsburg, N. Y., June '18; S. A. T. C., M. I. T., 30 Sept.—9 Dec. '18.
- DOBLE, E. H. (XV) Pvt., M. C. Med. Det., 102d M. G. Bn., Camp Devens, Mass., '18. A. E. F., '18—'19; missing, 23 Apr. '18; Prisoner of War, Darmstadt and Giessen, Germany; Hospital, Toul, France, Dec. '18; rejoined Regt. and returned to U. S. A., Feb. '19.
- DOOLEY, H. G. (XV) Appr. Sea., U. S. N. R. F., 29 Oct. '18.
- DOPMEYER, A. L. (I) Pvt., S. A. T. C., M. I. T., 10 Oct. '18.
- DORR, H. R. (II) Pvt., Engr. E. R. C., July '18.
- DOWLING, D. L. (X) Pvt., S. A. T. C., M. I. T.
- DOWNEY, J. F., JR. (VI) 2d Lt., A. S. A. Pvt., Aviation Sect., Sig. S., 19 Dec. '17; 2d Lt., A. S. A., R. M. A., 29 Aug. '18. Ground School, Princeton University, N. J., 19 Dec. '17; Gunnery School, Dayton, Ohio; 1st Pursuit Sq.; Officer in Charge, Acrobatic Flying, Payne Field, West Point, Miss.; in eight wrecks without serious injury. Disch., 31 Dec. '18.
- DOWNEY, J. J. (I) Pvt., Ord. Corps. School for Engineer of Tests, Carnegie Institute of Technology, 8 Oct. '17; Main Ord. Office, Washington, D. C., Dec.; Steel Inspector, Detroit Shell Co. and Chicago Railway Equipment Co., under Detroit Dist. Ord. Office, Mich. '18.
- DOYLE, J. I. (I) C. Q. M., U. S. N. R. F. (A). Naval Air Station, Miami, Fla., 27 Sept. '18.
- DUDLEY, S. E. (XIII) Lt., C. C., U. S. N. Ensign, U. S. N., June '16; Lt. (j. g.), Aug. '17; Lt., Oct. '17. A. E. F., Mech. '18—Mech. '19. Submarine engagement.
- DUFFILL, H. P. (I) Pvt., S. A. T. C., M. I. T., 11 Oct.—10 Dec. '18.
- DU VERNET, J. N. (I) Sapper, Canadian Engrs. Entered Service, '17; Co. A, 6th Canadian Engr. Bn., 2d Div., B. E. F., '18.
- DYKE, F. H. (X) 1st Lt., Inf. R. C. 2d Lt., Inf., May '18; 1st Lt., Inf. R. C., Jan. '19.

TECHNOLOGY'S WAR RECORD

- DZLADIK, W. B. (VII) Corp., Inf. 24th Co., 151st Depot Brig., Camp Devens, Mass., '18.
- EDMONDS, R. W. (III) Ensign, U. S. N. R. F. (A.). Sea. 2 cl., U. S. N. R. F., 1 Dec. '17; C. Q. M. (A), 7 Feb. '18; Ensign, 7 Oct. '18. Naval Aviation Detachment, M. I. T., 25 Mch. '18; Miami, Fla., 7 June; Naval Air Station, Pensacola, Fla.; Inst. in flying and aerial navigation, Naval Air Station, Miami, Fla., 15 Oct. '18—31 Jan. '19.
- ELLIS, C. A. (I) Pvt., S. A. T. C., M. I. T.
- ELLSBERG, EDWARD (XIII) Lt. Comdr., C. C., U. S. N. Ensign, U. S. N., '14; Lt. (j. g.), '17; Lt. '17; Lt. Comdr., C. C., '19.
- *EMERSON, W. K., JR. (II). See Roll of Honor (pages 93 and 147).
- ERICKSON, W. H. (III) Pvt., Marine Corps, 87th Co. (Signal), Camp Fuller, Tredyfein, Pa., 1 June '18. A. E. F., '18—'19; Guard Co. 66, St. Nazaire, Mch. '19; University of Bordeaux, May.
- ETHERINGTON, E. L. (VII) Corp., S. A. T. C., 11 Oct. '18—Jan. '19.
- ETER, H. P. (I) Pvt., C. A. C. Co. H, C. A. Off. Tr. Camp, Ft. Monroe, Va., 21 Oct.—9 Dec. '18.
- FAIRBROTHER, E. C. (III) Pvt., S. A. T. C., M. I. T.
- FALES, H. Y. (II) Ensign, U. S. N. R. F. (A). Sea. 2 cl., U. S. N. R. F. (A), 14 Dec. '17; C. Q. M., 1 Jan. '18; Ensign, 6 Aug. '18. Naval Aviation Detachment, M. I. T., 14 Dec. '17; Asst Inspector of Engr. Material (Aero), Hammondsport, N. Y., 20 Jan. '18; Inspector, Engr. Material (Aero), Buffalo, N. Y., 8 June '18—15 Jan. '19.
- FARROW, E. S., JR. (X) Pvt. (Candidate), F. A. Cent. Off. Tr. Sch., Camp Taylor, Ky., 21 Oct. '18.
- FEDERHEN, H. M. (X) Pvt., C. A. Off. Tr. Sch., Ft. Monroe, Va., Oct.—Dec. '18.
- FIELD, HOWARD, JR. (II) 2d Lt., A. S. A. Pvt. (Cadet), A. S. A., 28 Oct. '17; 2d Lt., 14 June '18. See Civilian Record.
- FISCHER, F. C. (XV) Corp., S. A. T. C., M. I. T., Oct.—Dec. '18.
- FISKE, D. L. (II) 2d Lt., C. A. R. C. Pvt. (Candidate), C. A. C., 10 Oct. '18; 2d Lt., C. A. R. C., 23 Dec. '18.
- FITZGERALD, W. J. (I) 2d Lt., A. S. A. Pvt., Aviation Sect., Sig. C., 1 Dec. '17; 2d Lt., A. S. A., 12 Sept. '18. Ground School for Aviation, Cornell University, N. Y., Jan. '18; Dallas, Texas, Taylor Field, Ala., and West Point, Miss., until 7 Jan. '19.
- FLEMING, W. A. (I) 2d Lt., C. A. R. C. Pvt., C. A. C., '18; 2d Lt., C. A. R. C., Jan. '19. Ft. Monroe, Va. '18; C. A. Off. Tr. Camp, Oct.—Dec. '18.
- FORBES, W. C. (X) Pvt., S. A. T. C., M. I. T.
- FORREST, H. O. (X) Pvt., S. A. T. C., M. I. T.
- FRANCK, J. J. (X) Pvt., S. A. T. C., 30 Sept.—Dec. '18. See Civilian Record.
- FRASER, A. A. (II) Appr. Sea., S. N. T. C., M. I. T.
- FREED, SIMON (V) Pvt., S. A. T. C., 10 Oct. '18.
- FREEMAN, W. M. B. (I) Sea. 2 cl., U. S. N. R. F., 3 July '18. S. N. T. C., M. I. T., Oct.—Dec. '18.
- FRENCH, E. B. (XV) Pvt., S. A. T. C., M. I. T.
- FRENCH, G. K. (I) Pvt., S. A. T. C., M. I. T.
- FREY, A. R., (I) Pvt., S. A. T. C., M. I. T.
- FRITH, H. H. (VI) Pvt., S. A. T. C., M. I. T.
- GEE, R. H. (II) Sea. 3 cl., S. N. T. C., M. I. T., 1 Oct. '18. See Civilian Record.
- GIBSON, R. K., JR. (III) Capt., Inf. 1st Lt., Inf., '17; Capt., '18. Co. F, 117th Inf., Chickamauga Park, Oct. '17; Camp Sever, S. C., Dec. A. E. F., '18—'19. Wounded at St-Quentin; Hospital, London, Nov. '18.
- GILL, F. M. (IV) Corp., S. A. T. C. Pvt., Engr. E. R. C., Feb. '18; transferred to S. A. T. C., Oct. '18.
- GILLIATT, L. W. (X) Pvt., S. A. T. C., 30 Sept. '18. See Civilian Record.
- GLASSETT, A. T. (I) Pvt., S. A. T. C., M. I. T. See Civilian Record.
- GLOVER, E. C. (X) Pvt., S. A. T. C., M. I. T.
- GOKEY, G. F., JR. (XV) Appr. Sea., S. N. T. C., M. I. T., 25 Sept. '18.
- GOLDSMITH, R. H., reported in U. S. N. R. F.
- GOODWIN, H. L. (II) Pvt., S. A. T. C., M. I. T., Oct.—Dec. '18.
- GRAVES, D. S., Ensign, U. S. N. R. F. Sea. 2 cl., U. S. N. R. F., Jan. '18; Q. M.; Ensign. Naval Training Camp, Hingham, Mass., Jan. '18; Naval Auxiliary School, Pelham Bay, N. Y., Apr. '18—Feb. '19.
- GRAY, H. A. (XV) Pvt., C. A. Off. Tr. Sch., Ft. Monroe, Va., 29 Oct.—22 Nov. '18.
- GREEN, H. J. (I) Pvt., S. A. T. C., M. I. T.
- GREGORY, D. V. (V) Pvt., C. W. S. Pvt., Inf., 24 June '18; transferred to C. W. S., 1 Aug. '18. 12th Co., 152d Depot Brig., 24 June '18; Johns Hopkins' Detachment, 1st Bn., C. W. S., 1 Aug.—16 Dec. '18.
- GRIESEMER, E. P. (X) 2d Lt., M. T. C. Pvt., Reserve Mallet, June '17; transferred to M. T. C., A. E. F., 2d Lt., M. T. C. In France June '17—'19; S. S. U. No. 20 with French Army, June '17; M. T. C. Sch. No. 1, Nov. '18. (Page 86.)

REGISTER OF MILITARY RECORDS

- GRILLI, J. P. (III) Pvt., S. A. T. C., M. I. T.
- GROSSCUP, H. A. (XIII) Appr. Sea., S. N. T. C., M. I. T.
- GROVER, N. A. (I) Pvt., S. A. T. C., 11 Oct. '18.
- HAEBLER, P. E. (I) Appr. Sea., S. N. T. C., M. I. T.
- HALL, G. L. (XIV) 2d Lt., A. S. A. Pvt. 1 cl., 12 Nov. '17; 2d Lt., 5 June '18. Armorer's School, Wright Field, Fairfield, Ohio, until 15 Sept. '18. A. E. F., 15 Sept. '18—20 Feb. '19; Pursuit Pilot.
- HAND, ALFRED (X) Sea., 1 cl., U. S. N. R. F. Entered Service, 28 Apr. '17; Woods Hole, Mass., 23 July—20 Sept. '18.
- *HANDY, W. R. (II). Member of the Students' Army Training Corps at the Institute. He was awaiting induction into the Service when he was taken ill with pneumonia. He died at the City Hospital, Boston, Nov. 1, 1918.
- HARDY, J. B. (IV) Corp., Aviation Sect., Sig. C. 141st Aero Sq., '17. A. E. F., '18—'19; American Aviation Tr. Detachment, Chateauroux, Oct. '18.
- HARLIN, E. L. (VI) 2d Lt., Inf. Pvt., Inf., June '18; 2d Lt., 16 Sept. '18. R. O. T. C., The Presidio, San Francisco, Calif., June '18; S. A. T. C., University of Washington, Seattle, Wash., 1 Oct.—26 Dec. '18.
- HARRIS, L. B. (VII) 2d Lt., Aviation Sect., Marine Corps. Gunnery Sgt., Aviation Sect., Marine Corps, 4 June '18; 2d Lt., 20 Oct.; Naval Aviator, 20 Nov. '18. Marine Aviation Detachment, Miami, Fla., 1 Sept.—23 Dec. '18.
- HARRIS, L. I. (X) Pvt., S. A. T. C., M. I. T., Oct.—Dec. '18
- HARRIS (formerly Harshowitz), LOUIS (XIV) Appr. Sea., S. N. T. C., M. I. T.
- HARROP, JAMES (X) Pvt., S. A. T. C., 10 Oct. '18.
- HARSCH, ERWIN (I) Lt. (j. g.), U. S. N. R. F. Ensign, U. S. N. R. F., 26 Nov. '17; Lt. (j. g.), 28 Apr. '19. U. S. Naval Auxiliary Reserve Officer Material School, Chicago, Ill., 26 Nov. '17; Watch Officer, U.S.S. Panuco, Nov. '18; Navigating Officer, U.S.S. Kentuckian, May '19; Inst. Naval Auxiliary Reserve Officer Material School, Chicago, Ill., Sept. '19.
- HART, C. G. (X) Sea., 2 cl., U. S. N. R. F., 26 June '18. S. N. T. C., M. I. T., Oct. '18.
- HARVEY, T. F. (II) Sea., 2 cl., U. S. N. R. F., 8 Apr. '18. S. A. T. C., Plattsburg, N. Y., 20 July—17 Sept. '18; S. N. T. C., M. I. T., 10 Oct.—17 Dec. '18.
- HASKELL, H. C. (XV) C. Q. M. (A.), U. S. N. R. F. Sea., 1 cl., U. S. N. R. F., 20 Apr. '17; C. Q. M. (A.), June '18. S. S. Topeka; S. S. Akbar; Submarine Patrol 336; Ground School, M. I. T., June '18; Naval Aviation Detachment, Miami, Fla.
- HATHAWAY, S. D. (II) Ensign, U. S. N. R. F. (A.). Entered Service, '17; Co. B, Naval Aviation Detachment, M. I. T., '18.
- HEDBERG, H. F. (II) Appr. Sea., S. N. T. C., M. I. T., 1 Oct. '18.
- HEDLUND, W. T. (XIII) Sea., 2 cl., U. S. N. R. F., 20 Apr. '18. S. N. T. C., M. I. T., 1 Oct.—17 Dec. '18.
- HENRY, J. E. (VI) Lt., M. C., U. S. N. R. F. Base Hosp. No. 17, Seattle and Bremerton, Wash., Oct. '18—Apr. '19.
- HENNESSY, D. J. (I) Appr. Sea., S. N. T. C., M. I. T.
- HERCZEL, R. E. (X) Pvt., Engrs. Camp Humphreys, Va., Oct. '18.
- HERRON, J. C. (III) Ensign, U. S. N. R. F. (A.). 22d Co., Naval Aviation Detachment, M. I. T., June '18.
- HIGGINS, A. D. (XV) Ensign, U. S. N. R. F. (A.). Pvt., Inf., 6 Apr. '17; 2d Lt., Marine Corps, 29 May '17 resigned and enlisted as Sea. 2 cl., U. S. N. R. F., 8 Mch. '18; C. Q. M., 13 May '18; Ensign, U. S. N. R. F. (A.), 20 Nov. '18. Ft. Slocum, N. Y.; Paris Island, S. C.; Cambridge, Mass.; Inst. in H—81 Flying Boats, Miami and Pensacola, Fla. until 8 Feb. '19.
- HILLS, H. W. (VI) Appr. Sea., S. N. T. C., M. I. T.
- HINGSTON, T. H. (X) Pvt., S. A. T. C., M. I. T., 1 Oct.—20 Dec. '18.
- HITCHCOCK, L. B. (X) C. Q. M., U. S. N. R. F. (A.). Co. 32, Naval Aviation Detachment, Cambridge, Mass. 26 July '18—Jan. '19.
- HITCHCOCK, R. S. (XIII) Lt., C. C., U. S. N. Entered Service, 12 June '12; Ensign, 3 June '16; Lt. (j. g.) 1 July '17; Lt., 15 Oct. '17. On U.S.S. Pennsylvania.
- HOLLENDEER, E. A. (XIV) Sgt., Marine Corps. Marine Detachment, U.S.S. Arkansas, 16 June '17; with British Grand Fleet Jan.—Dec. '18; present at surrender of the German High Seas Fleet, 21 Nov. '18.
- HONISS, W. T. (II) Sea., 2 cl., U. S. N. R. F., 5 Apr. '17. S. N. T. C., M. I. T., 1 Oct. '18—1 Jan. '19.
- HOOPER, W. P. (IV) Appr. Sea., S. N. T. C., M. I. T.
- HOPKINS, G. H. (II) Pvt., S. A. T. C., M. I. T.
- HOUGHTON, A. S. (V) Pvt., S. A. T. C., M. I. T.
- HOWE, C. W. (XV) 2d Lt., Aviation Sect., Sig. C. San Antonio, Texas, '18.
- HOWE, M. S. (XII) Sea. 1 cl., U. S. N. R. F. Submarine Base, New London, Conn., 3 Apr. '18—21 Jan. '19; transferred to U. S. Shipping Board vessels as 3d Engr., Jan.—1 Oct. '19. See Civilian Record.

TECHNOLOGY'S WAR RECORD

- HUBBELL, R. V. (II) Pvt., Ambulance Service. Ambulance Unit, Allentown, Pa., '17. A. E. F., with an American Sq. attached to French Army, at repair station doing work for several sections, Mch. '18. Reported slightly wounded, Oct. '18.
- HUGHES, T. J. (XV) M. M. 2 cl., U. S. N. R. F. Commonwealth Pier, Boston, Mass., Apr. '18; Bethlehem Shipbuilding Corp., Fore River Plant, Quincy, Mass.
- HUNTER, F. L., JR. (XIV) Pvt., S. A. T. C., M. I. T.
- HUNT, F. B. (II) Pvt., S. A. T. C., M. I. T.
- HUNTER, H. F. (II) Ensign, U. S. N. R. F. (A.). Sea. 2 cl., U. S. N. R. F., 6 Apr. '18; C. Q. M. (A.), 17 July, Ensign, 3 Apr. '19. Boston, 17 July '18; Miami, Fla., 21 Nov.; Pensacola, Fla., 24 Feb. '19.
- JAMES, L. L. (X) Pvt., C. W. S. 6th Co., 154th Depot Brig., Camp Meade, Md., 6 Sept. '18; transferred to Experimental Plant, Nela Park, Development Div., C. W. S., 12 Oct. '18.
- JOHNSON, L. E. (II) Capt., Inf. 1st Lt., Philippine Constabulary '14; 2d Lt., Inf., U. S. A., 27 Nov. '16; 1st Lt., 27 Nov. '16; Capt., 15 Aug. '18. 31st Inf., Philippine Islands, 27 Nov. '16; Siberia, 15 Aug. '18.
- JOHNSON, W. S. (V) Pvt., S. A. T. C., M. I. T.
- KAHN, H. J. (X) Pvt., S. A. T. C., 7 Oct.—9 Dec. '18.
- KAHN, L. D. (X) Pvt., S. A. T. C., M. I. T.
- KAPLAN, D. J. (X) Pvt., S. A. T. C., M. I. T., Oct. '18.
- KEATS, JOHN (X) Pvt., S. A. T. C., M. I. T.
- KELL, C. O., Lt., C. C., U. S. N. Entered Service, July '11; Destroyer Flotilla in European Waters; U.S.S. Cushing. Submarine engagements.
- KELLAR, J. W. (I) Ensign, U. S. N. R. F. (A.). Naval Aviation Detachment, M. I. T., Mch. '18; Dirigibles, Naval Air Station, Pensacola, Fla., Jan. '19.
- KEPNER, H. R. (XI) Pvt., S. A. T. C. Pvt., Engr. E. R. C., 16 Jan. '18; S. A. T. C., 21 Oct.
- KIMBALL, D. B. (X) Appr. Sea., U. S. N. R. F. Naval Aviation Detachment, M. I. T., 24 May '18; Flying School, Bay Shore, L. I., N. Y.
- KINGHORN, A. H., JR. (VI) Pvt., S. A. T. C., M. I. T.
- KLINGLER, C. H. (X) Pvt., S. A. T. C., M. I. T.
- KNAPP, A. M. (XIV) Pvt., Engrs. 7th Casuals, 33d Engrs., Camp Devens, Mass., Apr. '18. A. E. F., '18—'19; Co. B, 33d Engrs.
- KNIGHT, G. R. (XI) Sea., 2 cl., U. S. N. R. F. Commonwealth Pier, Boston, Mass., Mch. '18.
- KNAPP, R. T. (II) Pvt., Engrs., S. A. T. C.
- KNOX, M. B. (II) Appr. Sea., S. N. T. C., M. I. T.
- KRANTZ, H. K. (II) Appr. Sea., S. N. T. C., M. I. T.
- KREEGER, A. S. (II) Pvt., S. A. T. C., M. I. T.
- KRUSE, ALBERT (IV) Ensign, U. S. N. R. F. (A.). Commonwealth Pier, Boston, Mass., 1 July '18; Naval Air Stations, Pensacola and Key West, Fla.
- LARSEN, R. R. (XV) 2d Lt., A. S. A. Pvt., Aviation Sect., Sig. C., Feb. '18; 2d Lt., A. S. A., May '18. School of Military Aeronautics, Princeton, N. J., Feb. '18; Dallas, Texas, May '18—Mch. '19.
- LAVEDAN, P. F. (X) 1st Sgt., S. A. T. C. S. A. T. C., Plattsburg, N. Y., 18 July—18 Sept. '18; S. A. T. C., M. I. T., 10 Oct.—21 Dec. '18.
- LAVELLE, K. T. (II) Pvt., American Field Service. Allentown, Pa., June '17; S. S. U. No. 506, attached to French Army.
- LAWLER, J. P. (VI) Appr. Sea., S. N. T. C., M. I. T.
- LAWSON, C. J. (VI) Lt., Engrs. 301st Engrs., Camp Devens, Mass., '17; Off. Tr. Camp, Camp Lee, Va., '18. A. E. F., '18—'19 Co. B, 301st Engrs.; with 4th Army Corps, West of the Rhine, Feb. '19.
- LAWTON, F. W. (I) 2d Lt., Inf. Plattsburg Barracks, N. Y., 19 July '18; Camp Perry, Ohio, 12 Aug.; Rifle Inst., S. A. T. C., Villa Nova College, Pa., 14 Oct.—23 Dec. '18.
- LEANDER, C. H. (XV) Cadet Corp., S. A. T. C., Oct. '18.
- LEANDER, C. T. (X) Ensign, U. S. N. R. F. Sea., U. S. N. R. F., 14 Aug. '18; Ensign. Bumkin Island, Mass., Aug. '18; Naval Training Station, Hingham, Mass., 14 Dec. '18.
- LEE, M. H. (VI) C. M. M., U. S. N. R. F. Ensigns' School, Stevens Institute of Technology, Hoboken, N. J., '18—'19.
- LEE, S. M. (II) M. M. 1 cl., U. S. N. R. F. Entered Service, 7 July '17; Engine Room, U. S. Submarine Chaser 331, Div. N, Special Anti-Submarine Force, 5 Dec. '17.
- LEVY, H. M. (X) Pvt., S. A. T. C., 1 Oct. '18. See Civilian Record.
- LIBBY, A. E. Pvt., F. A. Btry. B, 101st F. A., '17. A. E. F., '17—'19; 26th Div. Gassed and wounded, 4 Nov. '18.
- LIPP, M. N. (I) Pvt., S. A. T. C., M. I. T.
- LITTLEFIELD, A. S. (X) Acting Sgt., S. A. T. C., M. I. T., 4 Oct. '18.
- LITTLEFIELD, M. B. (X) Boatswain, U. S. N. R. F., 21 Nov. '17—5 Feb. '19.

REGISTER OF MILITARY RECORDS

- LOCKWOOD, E. S. (VI) Corp., Sig. C. 316th Field Sig. Bn., 31 July '17; 29th Serv. Co., Radio Laboratories, Camp Vail, N. J., 22 July—22 Nov. '18.
- LOGAN, J. W. JR. (VI) Sea. 2 cl., U. S. N. R. F., 21 June '18. S. N. T. C., M. I. T., 10 Oct. '18. See Civilian Record.
- LORD, E. D. (X) Corp., S. A. T. C., 1 Oct. '18.
- LOWENTHAL, JULES (XV) Appr. Sea., S. N. T. C., M. I. T.
- LUCAS, JOHN (I) Pvt., S. A. T. C., M. I. T.
- McCARTHY, E. J. (VI) Appr. Sea., S. N. T. C., M. I. T.
- McCLOSKEY, JOHN, JR. (II) 2d Lt., C. A. C. Oiler on Hospital Ship running from U. S. to France, '17; 17th Co., Ft. Revere, Mass., Mch. '18; Ft. Banks, Mass., Nov. '18.
- McFADDEN, R. J. (I) Corp., Engrs. Co. A, 101st Engrs., Camp Devens, Mass., '17. A. E. F., '17—'19; Casual Officers' Depot, Jan. '19.
- McGILL, R. J. (X) 1st Lt., A. S. A. Garden City, N. Y. '18; Roosevelt Field, Mineola, L. I., Jan. '19.
- McGUIGAN, J. L. (XIII) Lt., C. C., U. S. N. Ensign, U. S. N., '14; Lt. (j. g.), 5 June '17; Lt., C. C., 29 Aug. '17. M. I. T., Apr. '17; Navy Yard, Norfolk, Va., repairing ex-German vessels, Apr. '17—Nov. '18.
- McINTOSH, H. W. (II) Sea. 2 cl., U. S. N. R. F. Entered Service, 5 Apr. '18; S. N. T. C., M. I. T., 15 Oct.—17 Dec. '18.
- McLEOD, J. G., JR. (V) Corp., M. C. 13th Co., 152d Depot Brig., Camp Upton, N. Y. '18; Co. C, Base Hosp., Camp Upton, N. Y.
- McCLEOD, W. D. (I) Pvt., C. A. C. Ft. Strong, Mass., 30 Oct. '18; Ft. Heath, 11 Nov.; Off. Tr. Sch., Ft. Monroe, Va., 19 Nov.; 15th Co., C. A. C., Ft. Andrews, Mass., 25 Nov.—14 Dec. '18.
- MAHER, P. F. (XIII) Pvt., Engr. E. R. C., 10 Dec. '17. S. A. T. C., M. I. T., 12 Oct. '18. See Civilian Record.
- MANNING, G. C. (XIII) Lt., Comdr. U. S. N. Entered Service, 6 May '10; Ensign, 6 June '14; Lt., (j. g.) 6 June '17; Lt., 31 Aug. '17; Lt. Comdr., 25 Sept. '19.
- MAROVITZ, H. J. (II) Sea., U. S. N. R. F., 15 July '18.
- MARRON, A. R. (XIII) Lt., C. C., U. S. N. Midshipman, 9 June '10; Ensign 5 June '14; Lt. (j. g.), 5 June '17; Lt., 31 Aug. '17 Navy Yard, Charleston, S. C., '17—'19.
- MASSEY, H. P. (I) Pvt., S. A. T. C., M. I. T.
- MATTHEWS, G. K. (VI) 2d Lt., A. S. A. Service in Texas, 16 Jan. '18—June '19.
- MATTHEWS, MEDWIN (I) Sea., 2 cl., U. S. N. R. F., 6 Apr. '18. S. N. T. C., M. I. T., 10 Oct.—17 Dec. '18.
- MEAD, F. L. (X) Appr. Sea., S. N. T. C., M. I. T.
- MEISSNER, W. E. (IV) Pvt., S. A. T. C., M. I. T.
- MERRIAM, H. W. (II) Pvt., S. A. T. C., M. I. T., 30 Sept.—11 Dec. '18.
- MERRYWEATHER, W. O. (VII) 2d Lt., C. A. C., C. A. Training Camp, Ft. Monroe, Va., '18; Narragansett Bay Coast Defense, Ft. Getty, R. I., Sept.
- MEYER, C. B. Lt.-Col. (T.), C. A. C. Permanent rank, Capt., C. A. C. Entered Service, 15 June '05. A. E. F., 5 Oct. '18—24 Mch. '19; 40th Brig., 2d Army as Lt.-Col. of 75th Arty. (Ry.).
- MICHAELS, M. A. (XV) Appr. Sea., S. N. T. C., M. I. T.
- MILLER, A. W. (XV) 2d Lt., F. A. Pvt., S. A. T. C., 5 July '18; Corp.; Sgt.; 2d Lt., F. A., 14 Sept. '18; 2d Lt., F. A. R. C., 6 May '19. R. O. T. C., Plattsburg, N. Y., 3 June '18; S. A. T. C., 5 July; F. A. Cent. Off. Tr. Sch., Camp Taylor, Ky., 14 Sept.—28 Dec. '18.
- MILLER, R. A. Pvt., S. A. T. C., M. I. T., 10 Oct.—17 Dec. '18.
- MILLIKEN, J. R., See class of '18.
- MILLIKEN, S. A. (XIII) Lt., Marine Corps, U. S. S. Pueblo, Apr. '18; 167th Co., Navy Yard, Norfolk, Va., Jan. '19.
- MILLS, B. M. (VI) Pvt., S. A. T. C., M. I. T., 10 Oct.—9 Dec. '18.
- MILLS, O. A. (III) Pvt., S. A. T. C., M. I. T.
- MITSCH, J. D. (I) Sgt., S. A. T. C. S. A. T. C., Plattsburg, N. Y., 17 July '18; S. A. T. C., M. I. T., 14 Oct.—16 Dec. '18.
- MOIR, J. G., JR. (VI) Pvt., acting Corp., S. A. T. C., 9 Oct.—15 Dec. '18.
- MOORE, C. C., JR. (X) 2d Lt., A. S. A. Pvt. (Flying Cadet), A. S., 17 Nov. '17; 2d Lt., 16 May '18.
- MORGAN, G. B. (I) 2d Lt., Engrs. Pvt., Sig. C., 24 Nov. '17; transferred to Engrs., and made 2d Lt., 16 May '18. 1st Telephone Bn., Sig. C., 24 Nov. '17; Camp Humphreys, Va., May '18. A. E. F., 20 Sept. '18—18 June '19; laid pipe line and light railroads into 1st line trenches. 2d Army Offensive.
- MORSE, A. L. (IX) Ensign, Kite Balloon Div., U. S. N. R. F. Akron, Ohio; Rockaway, L. I. A. E. F., Apr. '18—'19; Queenstown, Ireland; Rohampton, England; Castletown, Ireland; La Trinite and Brest, France.
- MORSE, B. C., JR. (XV) 1st Lt., Inf. 2d Lt., Inf., Feb. '18; 1st Lt. Camp McGrath, Batangas, Philippine Islands, '17; Co. L, 338th Inf., Camp Custer, Mich., May '18. A. E. F., '18—'19; Hq., 169th Inf., '18; 85th Div., Mich. '19.
- MOSSCROP, R. G. (X) Pvt., S. A. T. C., M. I. T.
- MURDOUGH, E. B. (I) Pvt., C. A. C., Ft. Monroe, Va., '18.

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- MURPHY, H. R. (VII) Pvt., S. A. T. C., M. I. T., 1 Oct. '18. See Civilian Record.
- MURPHY, L. H. (V) Sea, 2 cl., U. S. N. R. F. Naval Reserve Force, European Waters, '18-'19.
- MURRAY, H. J. (I) Ensign, U. S. N. R. F. (A.). C. Q. M. (A.), 2 June '18; Ensign, 16 Jan. '19. Ground School, M. I. T., 3 June '18; Naval Air Station, Miami, Fla., 17 Aug.; Naval Air Station, Pensacola, Fla., 8 Nov. '18—20 Feb. '19.
- MUSNITSKY, JOSHUA (XI) Pvt., S. A. T. C., M. I. T.
- MYERS, A. S. (X) Radio Elec., 2 cl., Communication Service, U. S. N. Sea, 2 cl., New York Naval Militia, 28 July '17; Radio Elec. 3 cl., 12 Oct. '17; Radio Elec. 2 cl., 1 Oct. '18. Radio Elec. in charge, U. S. Submarine Chaser 80. A. E. F., Greece, Austria and Italy, Mch. '18—May '19; Radio Station, U. S. Naval Base No. 25, European Waters, Corfu, Greece, Apr. '18; took part in Battle of Durazzo; Cattaro, Austria, 11 Nov. '18.
- NASH, J. C. (II) 2d Lt., C. A. C. Coast Defense of Boston.
- *NATHAN, T. C. (XV). See Roll of Honor (p. g. 100).
- NELLES, P. A., JR. (II) Sea, 2 cl., U. S. N. R. F., 4 Apr. '18. S. N. T. C., M. I. T., 14 Oct.—17 Dec. '18.
- NELSON, A. D., Cadet, Naval Academy, Annapolis, Md., '17.
- NELSON, G. W. (XIII) Lt. Comdr., C. C., U. S. N. Entered Service, 16 June '10.
- NEWHALL, K. C. (I) Pvt., S. A. T. C., M. I. T.
- NOELKE, H. M. (II) Pvt., S. A. T. C., M. I. T.
- NOLEN, JOHN, JR. (I) Gunnery Sgt., Aviation Sect., Marine Corps, 14 Oct. '18. Flight 34, Naval Aviation Detachment, M. I. T., 14 Oct. '18—18 Jan. '19. See Civilian Record.
- OSBORN, C. F. (Sp.) Lt., U. S. N. Midshipman, U. S. N., '11; Ensign, '15; Lt. (j. g.), 1 July '17; Lt., 15 Oct. '17. Patrol duty, U. S. S. Albany; Torpedo Inst., Newport, R. I.; Armed Guard Officer, New York to Liverpool; Submarine-chaser, New London, Conn.; U. S. S. Boggs, West Coast of U. S. A.
- OWEN, F. S. (IV) Lt., Inf., N. A. 76th Div. Hq., Camp Devens, Mass., '17. A. E. F., '17-'19.
- OWENS, G. R. (X) Pvt., S. A. T. C., M. I. T., 10 Oct.—17 Dec. '18.
- PAGE, K. B. (II) Pvt., 1 cl., M. C. 104th Inf., Dec. '17. A. E. F., '17-'18. Hospital No. 3, Rahway, N. J., Nov. '18. Slightly wounded. Croix de Guerre with silver star; Distinguished Service Cross. (Pages 135 and 150.)
- PARR, H. A. (I) Pvt., Canadian Army, 1 Oct. '15.
- PARSONS, J. S. (XV) 2d Lt., C. A. C. Pvt., C. A. C., 10 Aug. '18; 2d Lt., 10 Dec. '18. 6th Co., Ft. Banks, Mass., 10 Aug. '18; Off. Tr. Camp, Ft. Monroe, Va., 1 Oct.—10 Dec. '18.
- PASSELL, S. M. (XIII) Appr. Sea., S. N. T. C., M. I. T.
- PEIRCE, J. T. (XV) Ensign, U. S. N. R. F., 24 Nov. '17. Inst., Ensign Cadet School, Cambridge, Mass., Nov. '17—Dec. '18.
- PERKINS, J. R., JR. (III) Pvt., S. A. T. C., M. I. T.
- PETERSON, A. W., (XIII) Pvt., S. A. T. C., M. I. T.
- PETERSON, M. S. (III) 2d Lt., C. A. R. C. Pvt., 6th Off. Tr. Camp., C. A. C., 22 Oct. '18; 2d Lt., C. A. R. C., 10 Jan. '19.
- PHELPS, C. W. (X) Pvt., S. A. T. C., M. I. T.
- PIERCE, H. C. (XV) Pvt., S. A. T. C., M. I. T.
- PIKE, W. K. (VI) Pvt., C. A. C. 6th Co., Ft. Banks, Mass., 22 Oct.—19 Dec. '18.
- POLLOCK, R. B. (VI) Pvt., Sig. C. 13th Service Co., Sig. Off. Tr. Sch., Yale University, Conn., 8 July '18.
- POPE, KENNEDY (XV) 2d Lt., C. A. C. Pvt., C. A. C., 15 May '18; 2d Lt., 25 Sept. '18. 7th Co., Coast Defense of Boston, 15 May '18; Off. Tr. Camp, Ft. Monroe, Va. A. E. F., 11 Oct. '18—5 Mch. '19; Hv. Arty. Sch., Angers, 11 Nov. '18; Btry. F, 42d Arty., C. A. C., 23 Nov. '18.
- POWERS, J. H. (VII) Pvt., S. A. T. C., M. I. T.
- PRESTON, W. H. (II) Pvt., C. A. C. 29th Regt., C. A. C., Ft. McKinley, Maine, 19 Oct. '18.
- RADASCH, A. H. (X) Pvt., S. A. T. C. Off. Tr. Camp, Plattsburg, N. Y., '18; S. A. T. C.
- REED, C. H. (XV) Sea, 2 cl., U. S. N. R. F., 3 Apr. '18. S. N. T. C., M. I. T., 9 Oct.—18 Dec. '18.
- REYBURN, F. C. (XV) Sea, 2 cl., U. S. N. R. F. Naval Aviation Detachment, M. I. T., Apr. '18.
- REYNOLDS, B. M. (X) 2d Lt., Inf. Entered Service, 27 Aug. '17; 6th Regt., Marine Corps. A. E. F., 15 Jan. '18—17 Feb. '19; in all engagements with 6th Marines, until 19 July '18. Toul Sector; Verdun Sector; Aisne Defensive (Chateau-Thierry); Aisne-Marne Offensive. Wounded, 19 July '18. Croix de Guerre. (Page 174.)
- REYNOLDS, S. C. (IV) 1st Lt., F. A. Pvt. (Officer Candidate), F. A., 22 June '18; 2d Lt., 7 Aug.; 1st Lt., 21 Sept. '18. 9th Regt., F. A. Repl. Depot, Camp Jackson, S. C., 22 June '18; October Automatic Repl. Draft, Oct.—23 Dec. '18.
- RIDGWAY, R. R. (XIV) Appr. Sea., S. N. T. C., M. I. T.
- RILEY, W. A. (IV) 2d Lt., Inf. R. C. Pvt. 1 cl., Inf., 12 Aug. '18; 2d Lt., Inf. R. C., 20 Nov. '18. Cent. Off. Tr. Sch., Camp Lee, Va., 12 Aug.—20 Nov. '18.
- ROBERTS, ARTHUR (XIII) Appr. Sea., S. N. T. C., M. I. T.

REGISTER OF MILITARY RECORDS

- ROBILLARD, R. E. (I) Pvt., C. A. C. Off. Tr. Camp, Ft. Monroe, Va., 25 Oct. '18; 15th Co., Ft. Andrews, Mass., Nov. '18.
- ROBINSON, F. R. (II) Sgt. 1 cl., M. C. Pvt., M. C., 10 Sept. '17; Corp., 8 Dec. '17; Sgt., 26 Dec. '17; Sgt. 1 cl., 10 July '18. Ft. Slocum, N. Y., 12 Sept. '17; Ft. Oglethorpe, Ga., 3 Oct.; Allentown, Pa., 2 Mch. '18., A. E. F., 25 May '18—8 Feb. '19; Evacuation Hosp. No. 5 at Prauthoy, Sery Magneval, Château-Thierry Villers Coterets, Ville sur Crezances, La Veuve and Dunkirk, France, and Staden, Belgium.
- ROCKEFELLER, J. D. (III) 2d Lt., C. A. C. Ft. Monroe, Va., '18.
- ROMAN, KENNETH (II) Pvt., S. A. T. C., Sept. '18.
- ROSENTHAL, E. I., Pvt., S. A. T. C., M. I. T.
- ROSE, M. B. (XV) Pvt., M. C. Ambulance Co. No. 33, Camp Greene, N. C., July '17. A. E. F., May '18—June '19; 33d Ambulance Co., 4th Div. Aisne-Marne Offensive; St. Mihiel Offensive; Meuse-Argonne; Army of Occupation in Germany.
- ROWE, G. E. (II) Pvt., S. A. T. C., M. I. T.
- ROWE, R. R. (IV) 2d Lt., F. A. Cent. Off. Tr. Sch., Camp Taylor, Ky., July—14 Dec. '18.
- ROWE, W. H., JR. (IV) Lds. Q. M., U. S. N. R. F. 3d Regt., Naval Tr. Station, Charleston, S. C.; 1st Regt. Oct.—Dec. '18.
- RUBIN, SAMUEL (VIII) Pvt., C. W. S. Gas Defense, Astoria Detachment, L. I., Apr. '18—'19.
- RUTTENBERG, SAMUEL (X) Appr. Sea., S. N. T. C., M. I. T.
- RYER, E. D. (VI) 2d Lt., C. A. C. Pvt., C. A. C., 1 Oct. '18; 2d Lt., C. A. C., 10 Jan. '19. Co. H, C. A. Sch. Troops, Ft. Monroe, Va., 1 Oct. '18.
- SALE, W. H., JR. (XIV) 1st Y., U. S. N. R. F. U.S.S. Mt. Vernon (Transport), '18—'19.
- SANDERS, M. S. (VI) Pvt., Engr. E. R. C., 6 July '18; Pvt., S. A. T. C., Oct.—Dec. '18. See Civilian Record.
- SCHENBERG, SAMUEL (X) Pvt., S. A. T. C., Oct. '18.
- SCHIMMELPFENNIG, W. H. (IV) Pvt., S. A. T. C., M. I. T.
- SCOTT, J. H., JR. (II) 2d Lt., C. A. R. C. Pvt., C. A. C., 7 Oct. '18; 2d Lt., C. A. R. C., 3 Jan. '19. Co. T., C. A. Off. Tr. Sch., Ft. Monroe, Va., Oct. '18—3 Jan. '19.
- SEAVEY, H. V. (X) Pvt., Marine Corps. Recruit Camp, Paris Island, S. C., 15 May '18; Barracks Detachment, Philadelphia, Navy Yard Guard Pa., 15 June; Off. Tr. Camp, Quantico, Va., 20 Aug. '18—15 Feb. '19.
- SHAKESPEARE, M. C. (XV) Pvt., S. A. T. C., 12 Oct.—Dec. '18. See Civilian Record.
- SHLAGER, A. E. (I) Pvt., S. A. T. C., M. I. T.
- SHLAGER, MAX (X) Pvt., S. A. T. C., M. I. T.
- SIMMS, H. S. (V) Pvt., S. A. T. C., M. I. T.
- SIMON, J. B. (VII) 1st Lt., Inf. 2d Lt., Inf., 8 May '17; 1st Lt., 15 Aug. '17. 324th Inf., 8 May '17. A. E. F. Aug. '18—Feb. '19; 38th Inf., 20 Nov. '18. Meuse-Argonne Offensive.
- SKINNER, R. L. (V) Pvt., S. A. T. C., M. I. T.
- SLOAN, E. W. (II) 2d Lt., F. A. Pvt., F. A., July '18; 2d Lt. Tr. Camp, Presidio, Calif., July '18; Camp Taylor, Ky.
- SMIDDY, H. F. (VI) Pvt., S. A. T. C. Co. E, S. A. T. C., M. I. T., 9 Oct.—17 Dec. '18.
- SMITH, A. V. (II) C. Q. M., U. S. N. R. F. (A.). Entered Service, '17; Co. D, Naval Aviation Detachment, M. I. T., Jan. '18.
- SMITH, H. H. (X) Pvt., Engr. E. R. C., 5 Jan. '18; S. A. T. C., M. I. T., Oct.—Dec. '18.
- SMYSER, F. H. (XIV) Appr. Sea., S. N. T. C., M. I. T.
- SMYTH, C. A. (X) C. M. M., U. S. N. R. F. M. M. 2 cl., U. S. N. R. F., '17; C. M. M., '18. U.S.S. Granite State, New York Harbor, Nov. '17; Marine Engine Works, New London, Conn., Feb. '18; U.S.S. Hannibal (Transport), June '18.
- SNOW, LANCY (XIII) 2d Lt., A. S. A. Pvt., Aviation Sect., Sig. C.; 2d Lt., A. S. A., Apr. '18. Dallas, Texas, and San Diego, Calif.
- STACEY, J. H. (X) Ensign, U. S. N. R. F. (A.). C. Q. M., U. S. N. R. F., '18; Ensign, '19.
- STANWOOD, C. B. (X) Pvt., 1 cl. C. W. S. Entered Service, Oct. '18; Long Island Laboratory Detachment, C. W. S., 1 Nov. '18. See Civilian Record.
- STARK, EDWARD (X) Appr. Sea., S. N. T. C., M. I. T., 1 Oct. '18.
- *STEWART, GORDON (II). See Roll of Honor (page 107).
- STOCKBARGER, D. C. (XIV) Pvt., C. W. S. Research Div., C. W. S., Clark University, Worcester, Mass., 22 Aug.—16 Dec. '18. See Civilian Record.
- STROBRIDGE, J. G. (XV) Capt., F. A. Pvt., Off. Tr. Camp, May '17; 2d Lt., F. A., 15 Aug., Capt. '18. 13th Co., Plattsburg, N. Y., May '17; Ft. Leavenworth, Kan., Aug.; Co. E, 83d F. A., Dec. A. E. F., '18—'19.
- STUART, L. L. (IV, XV) 2d Lt., A. S. A. Pvt. 1 cl., A. S., June '17; 2d Lt. (Pursuit Pilot), A. S. A., 14 Nov. '18. Aviation Detachment, M. I. T., June '17. A. E. F., 22 Nov. '17—12 Aug. '19; St. Maixent; 2d Aviation Instruction Center, Tours; 3d Aviation Instruction Center, Issoudun; 7th Aviation Instruction Center, St. Jean des Monts; 27th Aero Sq.; Grenoble University Detachment, Grenoble, Mch. '19.

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- SULLIVAN, E. C. (I) Pvt., S. A. T. C., M. I. T.
- SULLIVAN, J. W. (V) M. M., U. S. N. R. F. Marine Iron Works, New London, Conn., Apr. '18. A. E. F., '18-'19; Submarine Chaser 145, Submarine-Hunting Sq.
- SUMWALT, R. L. (I) Pvt., Engr. E. R. C., 29 Jan. '18. Engr. Off. Tr. Sch., Camp Humphreys, Va., 1-20 Nov. '18.
- SWIFT, G. W. (II) Pvt., S. A. T. C., M. I. T.
- TABER, T. R. (XIII) 2d Lt., Cav. Entered Service, July '17; 2d Cav., Dec. '17. A. E. F., attached to Co. B, 9th M. G. Gn., June '18.
- TALCOTT, C. H. (VI) Ensign, U. S. N. R. F. (A.). Sea., 2 cl., U. S. N. R. F., '18; Ensign, Div. 19, Naval Aviation Detachment, M. I. T., Apr. '18; Sq. 1, Naval Air Station, Pensacola, Fla., Oct. '18-'19.
- TATTERSFIELD, GERALD, (X) Pvt. S. A. T. C., M. I. T.
- *TAYLOR, E. A. (II). See Roll of Honor (page 104).
- TAYLOR, M. H. (XV) reported 2d Lt., Inf.
- THIES, O. J., JR. (V) Pvt., S. A. T. C., M. I. T.
- THOMAS, L. G. L. (II) Pvt., Ord. Corps. Entered Service, 2 Dec. '17. A. E. F., Aug. '18-Mch. '19; 68th Arty., C. A. C.
- THOMPSON, H. B. (I) Ensign, U. S. N. Sea., 2 cl., U. S. N. R. F., 25 May '18; Ensign, U. S. N. R. F., 25 Sept.; Ensign, U. S. N., 31 Jan. '19.
- TIRRELL, R. W. (II) Appr. Sea., U. S. N. R. F. Entered Service, 7 Aug. '18; Newport, R. I., 19 Aug. '18; Rumfort Rifle Range, 10 Sept.; S. N. T. C., M. I. T., 30 Sept.—17 Dec. '18. See Civilian Record.
- TOBIN, R. J. (X) Pvt., S. A. T. C., M. I. T.
- TOMLINSON, A. H. (X) Pvt., S. A. T. C., M. I. T.
- TRAVIS, R. E. (XIII) Sea. 2 cl., U. S. N. R. F. Entered Service, 3 May '18; U.S.S. Canandaigua, Mining Squadron No. 1, Atlantic Fleet, North Sea, laying and removing North Sea Barrage, 4 Sept. '18—24 Jan. '19.
- TUSHIN, AARON (X) Pvt., S. A. T. C., M. I. T.
- TYSON, H. N. (II) Pvt., S. A. T. C., M. I. T., 10 Oct. '18.
- VAN DEUSEN, E. T. (II) 2d Lt., Aviation Sect., Marine Corps. Sea., U. S. N. R. F., 7 May '17; U. S. N. R. F. (A.), 10 Aug.; C. Q. M. (A.), 1 Jan. '18; Aviation Sect., Marine Corps, 6 June; 2d Lt., Marine Corps, 6 June '18. Torpedo Station, 7 May '17; Naval Aviation Detachment, M. I. T., 30 Oct. '17; Naval Air Station, Pensacola, Fla., 11 Mch. '18; Marine Flying Field, Miami, Fla., 6 June. A. E. F., 13 July—20 Dec. '18. North Bombing Sq. Marine Field, Miami, Fla., 20 Jan.—27 Mch. '19.
- VIANO, A. E. (X) M. M. 1 cl., U. S. N. R. F. (A.). M. M. 2 cl., U. S. N. R. F. (A.), May '18; M. M. 1 cl., '19. Naval Air Station, Bay Shore, L. I., May '18; Miami, Fla., '19.
- WAIT, P. E. (XV) Ensign, U. S. N. R. F. Sea. 2 cl., U. S. N. R. F., 28 Nov. '17; Ensign, 6 June '18. Bumkin Island, Mass., 28 Nov. '17; 1st Naval Dist. Cadet School, Cambridge, Mass., U.S.S. Martha Washington, sailing between England, France, and U. S., July '18—May '19.
- WALMSLEY, GEORGE (VI) Pvt., S. A. T. C., 9 Oct.—19 Dec. '18.
- WARNER, W. W. (II) Capt., C. A. C. 1st Lt., C. A. C., 13 June '13; Capt., (T.), 5 Aug. '17. Coast Defense Service, New York, 1 June '17; Military Academy, West Point, N. Y., 25 Aug. '18—1 Oct. '19.
- WATERS, L. A. (VI) 2d Lt., Inf. Ft. Niagara, Nov. '17. A. E. F., '18-'19; machine gun service with 26th Inf., Apr. '18.
- WATTS, E. F. (I) Pvt., S. A. T. C., M. I. T.
- WEXLER, DAVID (I) Pvt., S. A. T. C., M. I. T.
- WELLFORD, A. L. (VI) 1st Lt., C. A. C., attached to A. S. 2d Lt., C. A. C., 25 Aug. '17; 1st Lt., 8 Apr. '18. 2d Off. Tr. Camp, Ft. Myer, 25 Aug. '17; Ft. Monroe, Va., 1 Dec.; Langley Field, for training as Aerial Observer, 15 Apr. '18; School of Aerial Gunnery, Mt. Clemens, Mich., 12 June '18; attached to Air Service, 7 July '18. A. E. F., 21 Sept. '18—21 Apr. '19; St. Maixent, Sept. '18; 2d Aviation Instruction Center, Tours, 6 Oct.; 8th Aero Sq., Colombey-les-Belles, 19 Nov. '18.
- WELLS, S. H. (II) Pvt., S. A. T. C., M. I. T., Oct. '18. See Civilian Record.
- WEYMOUTH, L. E. (X) Pvt., S. A. T. C., M. I. T., 10 Oct. '18.
- WHELAN, D. E. (I) 2d Lt., A. S. A. Pvt., 1 cl., A. S., 9 Jan. '18; 2d Lt., A. S. A., 8 Nov. '18. School of Military Aeronautics, Princeton, N. J., 25 May '18; Camp Dick, Texas, 20 Aug.; School of Fire for F. A., Ft. Sill, Okla., 28 Sept. '18; School for Aerial Observers, 8 Nov. '18.
- WHITE, K. B. (XV) 2d Lt., Inf. Pvt., Inf., 17 July '18; 2d Lt., 16 Sept. '18. S. A. T. C., Plattsburg, N. Y., July '18; Inst., S. A. T. C., City College, N. Y., 26 Sept.—20 Dec. '18.
- WHITEHEAD, E. P. (I) Pvt., S. A. T. C., M. I. T.
- WHITTEN, L. P. (X) 2d Lt., A. S. A. Pvt. 1 cl., A. S., '17; 2d Lt., A. S. A., '18. School of Military Aeronautics, Princeton, N. J., '17; Taliaferro Field, Texas, May '18; Ellington Field, Texas, Dec. '18—6 Jan. '19.
- WIDDOWSON, R. J. (V) Pvt., C. W. S., '18. Astoria Detachment, C. W. S., Astoria, L. I., '18-'19.

REGISTER OF MILITARY RECORDS

- WILCOX, F. D. (I, IV, XV) 2d Lt., Engrs. Civilian Employee (Militarized), Cons. Dept., U. S. Air Service, Paris, France, 24 Oct. '17; 2d Lt., Engrs., 4 Oct. '18. In charge of lay out work during cons. of various camps in France; Dist. Engr. Representative, Tours Dist., 15 Apr. '19; Army of Occupation, Co. D, 6th Engrs., 12 July. C. O., Service Park Unit, No. 318, M. T. C., 3d Div., 31 July '19.
- WILDE, W. C. (IV) Pvt., Marine Corps, Barracks Detachment, Marine Barracks, Washington, D. C., 30 July '18.
- WILLIAMS, A. F., reported 2d Lt., Inf.
- WILSON, G. A. (XIII) Appr. Sea., S. N. T. C., M. I. T.
- WILSON, I. H. (VI) Pvt., S. A. T. C., M. I. T.
- WILSON, J. C. (XIV) Pvt., S. A. T. C., M. I. T., 1 Oct. '18.
- WILSON, L. D. (I) 2d Lt., C. A. C. Ft. Monroe, Va., '18.
- WINANT, W. L. (XV) 2d Lt. (T.), Aviation Sect., Marine Corps. Gunnery Sgt., Aviation Sect., Marine Corps, 21 Aug. '18; 2d Lt. (T.), 4 Jan. '19. Marine Barracks, Charlestown Navy Yard, 21 Aug. '18; Co. 33, Naval Aviation Detachment, M. I. T., 20 Sept. '18—4 Jan. '19.
- WINEBAUM, ARTHUR (I) Pvt., S. A. T. C., M. I. T.
- WIRT, WILLISTON (XIII) Appr. Sea., S. N. T. C., M. I. T.
- WOLAZIN, JULIUS (VI) Appr. Sea., S. N. T. C., M. I. T.
- WOLFSON, J. J. (IV) Pvt., S. A. T. C., M. I. T.
- WRIGHT, LIVINGSTON (III) Pvt., 1 cl., American Ambulance Service. American Field Service with French Army, S. S. U. 641, 7 July '17; enlisted in U. S. A., at Lanchy, France, 1 Sept.; transferred to S. S. U. 649, 9 Oct. '18. Somme; Verdun; St. Mihiel Offensive; Meuse-Argonne Offensive.
- WURZELBACHER, G. M. (VI) Sgt. Inf. 330th Inf., Camp Sherman, Ohio, '18. A. E. F., '18; Co. G, 330th Inf., 83d Div.
- YOUNG, P. L. (X) Pvt., C. A. C. Off. Tr. Camp, 10 Oct.—15 Dec. '18.
- ZAHN, E. G. (VI) Pvt., S. A. T. C., M. I. T.
- ZIMMERMAN, W. E. (XIV) Bn., Sgt. Maj., Army Service Corps. Pvt., F. A., 27 Apr. '18; Sgt., 16 Sept.; transferred to Army Service Corps, 10 Feb. '19; Bn. Sgt. Maj., 11 June '19. 316th T. M. Btry., F. A., 91st Div., 27 Apr. '18. A. E. F., 28 June '18—23 July '19; Hq. Troops, '19.

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- ABRAMS, H. J. (XV) Appr. Sea., S. N. T. C., M. I. T.
- ADAMS, B. F. (V) 2d Lt., Inf. Pvt., Inf., 18 July '18; 2d Lt., 16 Sept. '18. Repl. and Tr. Troops, Plattsburg, N. Y., 18 July '18; Camp Grant, Ill., 16 Sept.—6 Dec. '18.
- ADAMS, E. T. (V) Pvt., S. A. T. C., 10 Oct. '18.
- ADAMS, WALDO (II) 2d Lt., C. A. R. C. Pvt., C. A. C., '18; 2d Lt., C. A. R. C., '19.
- ADAMS, W. T. (I) Pvt., S. A. T. C., M. I. T.
- ADDICKS, A. D. (X) Sea. 2 cl., S. N. T. C., M. I. T., 14 Oct.—11 Dec. '18.
- AHERN, A. G. (IV) Pvt., S. A. T. C., M. I. T.
- ALTER, H. A. (XV) Pvt., S. A. T. C., M. I. T.
- ANABLE, ANTHONY (XV) Ensign, U. S. N. R. F. Cadet, U. S. N. R. F., 18 Oct. '17; Ensign, 3 June '18. Ensign Cadet Sch., Cambridge, Mass., 18 Oct. '17; U.S.S. America, transport service between New York and Brest, France, 3 July '18—27 Jan. '19.
- ARONSON, A. H. (V) Pvt., S. A. T. C., M. I. T., 1 Oct.—9 Dec. '18.
- ARONSON, J. C. (I) Pvt., S. A. T. C., M. I. T.
- ARRIGONI, C. L. (II) Sgt., S. A. T. C. Pvt., S. A. T. C., 10 Oct. '18; Cadet Sgt. S. A. T. C., M. I. T., 10 Oct.—9 Nov. '18.
- ATKINSON, G. H. (X) Pvt., S. A. T. C., M. I. T.
- AVERY, C. O. (II) Pvt., S. A. T. C., M. I. T.
- AVERY, W. K. (II) Pvt., S. A. T. C., M. I. T., 1 Oct. '18. See Civilian Record.
- AYRES, E. D. (VI) Pvt., S. A. T. C., 1 Oct. '18.
- BACHMANN, A. E. (X) 2d Lt., Inf., 22 July '18. Detached Officers' List.
- BAKER, C. N. (XV) Appr. Sea., S. N. T. C., M. I. T.
- BAKER, J. B. (XV) Pvt., 1 cl., S. A. T. C., M. I. T., 5 Oct.—17 Dec. '18.
- BANKS, L. H. (X) Pvt., S. A. T. C., 19 Oct. '18. See Civilian Record.
- BARCLAY, A. T. (II) Sea., 2 cl., U. S. N. R. F., 25 July '18. Puget Sound Naval Camp.
- BARKER, L. B. (II) Appr. Sea., S. N. T. C., M. I. T., 10 Oct. '18.
- BARKER, R. W. (II) Appr. Sea., U. S. N. R. F., 12 Aug. '18. S. N. T. C., M. I. T., 10 Oct.—17 Dec. '18.
- BARKER, W. R. (XIV) Sea. 2 cl., U. S. N. R. F. Newport, R. I., 14 May '17; Woods Hole, Mass., Aug. '18; S. N. T. C., M. I. T., Sept. '18.
- BARRIGER, J. W. 3d (XV) Pvt., S. A. T. C., M. I. T.

TECHNOLOGY'S WAR RECORD

- BARRY, E. L. W. (XV) C. Q. M., U. S. N. R. F. (A.), Sept.—Dec. '18.
- BARTON, C. B., JR. (X) Pvt., S. A. T. C., M. I. T., Oct. '18.
- BATCHELDER, H. B. (XV) Pvt., S. A. T. C., M. I. T.
- BAWDEN, GARVIN (XV) Pvt., Engr. E. R. C., M. I. T., 1 Feb. '18. Applied for commission in Aviation Sect., Marine C., just before armistice.
- BAYLE, J. H. (II) 2d Lt., C. A. C. Pvt., C. A. C., June '18; 2d Lt., Nov. '18. Ft. Hamilton, N. Y., June '18; Ft. Monroe, Va., Sept. '18.
- BEATTIE, M. B. (XV) Pvt., Royal Highlanders, (Scottish Horse). 3d Black Watch, Royal Highlanders, Canada, 25 Apr. '18. B. E. F., 30 May '18—Feb. '19; transferred to 13th Black Watch, 14 Oct. '18. Le Cateau; Landrecies; Fontaine-au-Bois; Mont-Doulers; Mormal Forest. Wounded, right knee, 31 Oct. '18.
- BEAZLEY, C. L. (XIII) Sapper, Royal Canadian Engrs., 9 May '17. Service in Canada.
- BEJQUE, J. E. (I) Cadet, (3d), Royal Air Force, (British). Cadet for Pilot, School of Aeronautics, University of Toronto, Canada, Aug.—Dec. '18.
- BERGEN, M. J. (V, VII) Hosp. Appr., U. S. N. R. F. Hosp. Corps, Transport Service, Newport, R. I., 8 Feb. '19; Philadelphia, Pa., Apr.; U.S.S. Sol Navis, May; France, 10th June to 20 Aug. '19.
- BINNS, F. W. (X) 2d Lt., Inf. Pvt., Off. Tr. Camp, 2 June '18; 2d Lt., Inf., 3 Sept. '18. Plattsburg, N. Y., June '18; 73d Co., M. G. School, Camp Hancock, Ga., 7 Aug.; Inst., machine gun tactics, "gas," grenades and bombing, Machine Gun Tr. Center, Camp Hancock, Ga., Sept. '18.
- BIXBY, H. O. (II) Pvt., S. A. T. C., M. I. T.
- BLACK, R. D. (III) Pvt., C. A. C. Btry. C, 20th Regt., Fort McKinley, Portland, Maine, '18.
- BLEWER, F. L. (I) Pvt., S. A. T. C., M. I. T., 10 Oct. '18.
- BLOMQUIST, H. R. (VI) Pvt., S. A. T. C., M. I. T. 26 Sept.—9 Dec. '18. See Civilian Record.
- BOND, D. B. (X) Pvt., S. A. T. C., 2 Nov. '18.
- BOSSERT, T. W. (X) 2d Lt., C. A. C. Pvt., C. A. C., 4 June '18; 2d Lt., 25 Sept. '18. 54th Arty., C. A. C. Ft. Monroe, Va., 4 June '18. A. E. F., Sept. '18—Mch. '19.
- BOSTON, J. L. (I) Pvt., S. A. T. C., M. I. T.
- BOUCHER, W. F., JR. (X) Pvt., S. A. T. C., M. I. T.
- BOYLE, M. F. (II) Pvt., S. A. T. C., M. I. T.
- BRADFORD, S. E. (I) Pvt., S. A. T. C., M. I. T.
- BREED, C. A. (X) Pvt., S. A. T. C., M. I. T., 1 Oct.—15 Dec. '18.
- BRIGGS, J. M. (VI) Appr. Sea., S. N. T. C., M. I. T., 1 Oct. '18.
- BRIMBLECOM, W. K. (III) Pvt., S. A. T. C., M. I. T.
- BROIDE, S. J. (VI) Pvt., S. A. T. C., M. I. T.
- BROWN, D. T. (II) Pvt., S. A. T. C., M. I. T.
- BROWN, O. W. (VI) Pvt., S. A. T. C., M. I. T.
- BROWN, SAMPSON (X) Pvt., S. A. T. C. Co. D, S. A. T. C., M. I. T.
- BROWNE, O. A. (VI) Appr. Sea., S. N. T. C., M. I. T.
- BUCKLEY, J. E., JR. (VI) Pvt., S. A. T. C., M. I. T., 30 Sept. '18.
- BUCKNER, L. O. (VI) Corp., S. A. T. C., M. I. T., 10 Oct. '18.
- BUGBEE, L. W., JR. (XV) Pvt., S. A. T. C., M. I. T.
- BURKETT, M. K. (VI) Pvt., S. A. T. C., M. I. T.
- BURNHAM, C. H. (XIII) 2d Lt., Sig. R. C., (A.). Pvt., 1 cl., A. S., 25 Jan. '18; 2d Lt., Sig. O. R. C., Flying Status, 4 Mch. '19. Camp Dick, Texas, 1 June '18; School of Military Aeronautics, University of Texas, 30 June; Camp Dick, Texas, 13 Oct.; Flying School, Park Field, Tenn., 8 Nov. '18—12 Mch. '19.
- BURRELL, L. K. (XV) Pvt., S. A. T. C., M. I. T., 30 Sept.—12 Dec. '18.
- BURROUGHS, M. S. (XV) Appr. Sea., S. N. T. C., M. I. T.
- BURT, G. H. (II) Pvt., S. A. T. C., M. I. T.
- BUTTER, H. M. (III) Pvt., S. A. T. C., M. I. T.
- BUTTER, M. R. (III) Appr. Sea., S. N. T. C., M. I. T.
- BUTTON, H. C. (X) Sea. 1 cl., U. S. N. R. F., 19 Apr. '17. Bumkin Island, Mass., 19 Apr. '17; S. N. T. C., M. I. T., 16 Oct.—18 Dec. '18.
- CAKE, H. H. (VI) Pvt., S. A. T. C., M. I. T.
- CALVERT, ALBERT (VI) Pvt., S. A. T. C., M. I. T.
- CAMPBELL, T. P. (XIV) 2d Lt., A. S. A. Ambulance Driver, S. S. U. 66, American Field Service, France, 2 June—Nov. '17. Transferred to A. S., U. S. A., 17 Dec.; 2d Lt., A. S. A., 28 Feb. '18. Ft. Worth, Texas, Dec. '17; Houston and Austin, Texas, to Jan. '19. Chemin des Dames, July '17.
- CANTERBURY, M. P. (I) Pvt., S. A. T. C., 16 Oct.—26 Nov. '18.
- CANZANELLI, ATILIO (III) Pvt., S. A. T. C., M. I. T.

REGISTER OF MILITARY RECORDS

- CARD, T. B. (VI) 2d Lt., A. S. A. Pvt. 1 cl., Aviation Sect., Sig. C., 17 Oct. '17; 2d Lt., A. S. A., R. M. A., 20 July '18. School of Military Aeronautics, M. I. T., 17 Oct. '17; Flying, aerial gunnery, and flying inst., Camp Dick, Texas, Eberts Field, Ark.; Wilbur Wright Field, Ohio; Payne Field, Miss.; Carlstrom and Dorr Fields, Fla.
- CARPENTER, D. F. (XV) 2d Lt., C. A. C. Co. K, C. A. Off. Tr. Sch., Ft. Monroe, Va., 28 Oct. '18; 2d Lt., 24 Jan. '19.
- CARPENTER, F. S. (XV) Ensign, U. S. N. R. F. (A.). C. Q. M. (A.), U. S. N. R. F., 15 Oct. '17; Ensign, 30 July '18. Naval Aviation Detachment, M. I. T., Oct. '17; Naval Air Station, Pensacola, Fla.; Gunnery Pilot, July '18. A. E. F., Sept.—19 Dec. '18; coast station near Bordeaux, France; Killingholme, England, conveying ships in North Sea.
- CARR, J. H. (IV) Capt., Aviation Sect., Sig. R. C. Pvt. 1 cl., Aviation Sect., Sig. C., 22 May '17; 1st Lt., 5 Nov.; Capt., Aviation Sect., Sig. O. R. C., 8 Dec. '99. 88th Aero Service Sq., 22 May '17. A. E. F., France, 14 Nov. '17—18 July '19; 139th Aero Sq., 2d Pursuit Group. St. Mihiel and Meuse-Argonne Offensives. Citation from Commander of A. S., 1st Army. Disch., 13 Oct. '19.
- CARTE, J. R. (VI) Appr. Sea., S. N. T. C., M. I. T.
- CARTER, D. B. (XV) Corp., Co. B, S. A. T. C., 10 Oct.—19 Dec. '18.
- CARVEN, C. C. (IV) Pvt., S. A. T. C., M. I. T.
- CASE, W. A. (II) Pvt., S. A. T. C., M. I. T.
- CASSELL, C. A. (III) Appr. Sea., S. N. T. C., M. I. T., 14 Oct. '18.
- CASTONGUAY, LAWRENCE (II) Pvt., Inf. (Limited Service). Assigned to Engineering Dept., Winchester Repeating Arms Co., Aug. '18—10 Mch. '19. See Civilian Record.
- CASTOR, A. H. (VI) Pvt., S. A. T. C., M. I. T.
- CHAMBERS, I. F. (X) Pvt., S. A. T. C., M. I. T.
- CHELLIS, L. D. (II) Pvt., S. A. T. C., M. I. T.
- CHUTTER, G. A. (VI) Pvt., S. A. T. C., M. I. T.
- CLARK, E. P. (II) Pvt., S. A. T. C., M. I. T.
- CLARK, O. W. (XIV) Pvt., S. A. T. C., 10 Oct. '18.
- CLARK, P. W. (XIII) Sea. 2 cl., U. S. N. R. F., 5 Apr. '18. S. N. T. C., M. I. T., 10 Oct.—18 Dec. '18.
- CLARK, R. S. (X) 2d Lt., Inf. Pvt., Inf., 22 July '18; 2d Lt., 16 Sept. '18. S. A. T. C., Plattsburg, N. Y., July '18; in command of a company, S. A. T. C., Cornell University, Ithaca, N. Y., 16 Sept.—31 Dec. '18.
- CLARKE, C. A. (VI) Elec. 2 cl., U. S. N. Electrical Constructor, Bethlehem Shipbuilding Corp., Victory Plant, Squantum, Mass., working on electrical cons. on torpedo boat destroyers.
- CLARKE, E. R. (X) Acting Corp., S. A. T. C., M. I. T., 1 Oct. '18.
- CLARKSON, E. D. (II) Pvt., S. A. T. C., 14 Oct. '18.
- CLEMENTS, W. F. (I) Pvt., S. A. T. C., M. I. T.
- COACHMAN, K. P. (XIII) Pvt., S. A. T. C., M. I. T.
- COES, MARION L. (X) Laboratory Technician, Med. Dept. Entered Service, 20 June '18. A. E. F., 14 July '18—Mch. '19; Base Hospital No. 44, Pougues-les-Eaux and Mesves. See Civilian Record.
- COFFIN, P. T. (VI) Pvt., S. A. T. C., M. I. T.
- COHEN, C. M. (X) Appr. Sea., S. N. T. C., M. I. T.
- COLDWELL, F. H. (II) Appr. Sea., S. N. T. C., M. I. T.
- COLE, HARRY (I) 1st Lt., Engrs. 2d Lt., C. A. C., 25 July '17; 2d Lt., Engrs., 25 Aug. '17; 1st Lt., 30 July '18. C. A. C., Rhode Island N. G., July '17. A. E. F., Sept. '17—U. S., Aug.—Dec. '18. Chemin des Dames Sector; Soissons Sector; Toul Sector; Pas Fini Sector (Château-Thierry). Regimental Citation. See Civilian Record.
- COLE, V. C. (II) Corp., S. A. T. C., M. I. T., 10 Oct. '18.
- COLLINS, J. J. (II) Ensign, U. S. N. R. F. (A.). C. Q. M. (A.), U. S. N. R. F., 25 May '18; Ensign, Jan. '19. Disch., 15 Feb. '19.
- COLLINS, W. A. (I) Pvt., S. A. T. C., M. I. T.
- CONANT, L. W. (XV) Appr. Sea., S. N. T. C., M. I. T.
- COOK, H. D. (X) 2d Lt., F. A. Pvt., Inf., 21 July '18; 2d Lt., F. A., 16 Sept. '18. S. A. T. C., Plattsburg, N. Y., July '18. Disch., 30 Dec. '18.
- COOK, R. S. (I) 2d Lt., F. A. Pvt., 14 May '17; 2d Lt., 27 Nov. '17. A. E. F., Feb. '18—25 June '19; Arty.; Sch., Saumur, Feb. '18; 7th F. A., 1st Div., May '18. Montdidier-Noyon Defensive; Aisne-Marne Offensive; St. Mihiel Offensive; Meuse-Argonne Offensive. Divisional Citation. (Page 156.)
- CORBETT, W. P. (II) Sgt., S. A. T. C., M. I. T., 15 Aug. '18.
- COWIE, L. K. (III) 2d Lt., C. A. C. Pvt., C. A. C., Oct. '18; 2d Lt., C. A. C., Jan. '19. 12th Co., C. A. C., Coast Defense of New York, Ft. Totten, Oct. '18; Sch. for N. C. O.'s, Oct.; Off. Tr. Sch., Ft. Monroe, Va., to 7 Feb. '19.
- COWLES, W. H., Ensign, U. S. N. R. F., Apr. '17.

TECHNOLOGY'S WAR RECORD

- CRAFTS, A. F. (I) Pvt., S. A. T. C., M. I. T.
 CRAWFORD, R. B. P. (XIV) C. Q. M., U. S. N. R. F. (A.). Flight 34, Naval Aviation Detachment, M. I. T., 15 Oct. '18.
- CROSBY, E. D. (II) Pvt., S. A. T. C., M. I. T., 1 Oct.—10 Dec. '18.
 CROSBY, J. D. (X) Pvt., S. A. T. C., M. I. T.
 CROWLEY, J. D. (II) Appr. Sea., S. N. T. C., M. I. T.
 CUDWORTH, J. R. (III) Cadet, U. S. Coast Guard Academy, U. S. N., 1 Aug. '18—Feb. '19.
 CUMMINGS, J. S. (VI) Pvt., S. A. T. C., M. I. T.
 *CURRY, DONALD (XIII). See Roll of Honor (page 124).
 CURRY, J. R. (II) Pvt., S. A. T. C., M. I. T., 15 Oct.—17 Dec. '18.
 CURTIN, F. J. (I) Appr. Sea., S. N. T. C., M. I. T.
 DATEO, GEORGE (II) Pvt., S. A. T. C., M. I. T.
 DAVIS E. W. (II) Pvt., Ord. S. A. T. C., 28 Sept. '18.
 DAVIS, L. B. (I) Petty Officer, U. S. N. R. F. Appr. Sea., U. S. N. R. F., 1 Sept. '18; Petty Officer, 4 Oct. '18. S. N. T. C., M. I. T.
- DEAN, WINTER (XV) Sea. 2 cl., U. S. N. R. F. Entered Service, 12 Apr. '18; Armed Guard and Submarine Service; Hingham and Bumkin Island, Mass., and Pelham Bay, N. Y., 31 July—2 Dec. '18.
- DELANY, E. F. (I) S. A. T. C. See Civilian Record.
 DENNISON, H. T. (IV) Appr. Sea., S. N. T. C., M. I. T.
- DERBY, H. S. (XIV) Corp., F. A. Btry. A, 101st F. A., 26th Div., 7 Sept. '17. A. E. F., 9 Sept. '17—1 Apr. '19. Chemin des Dames; Toul Sector; Aisne-Marne Offensive (Chateau-Thierry); St. Mihiel Offensive; Meuse-Argonne Offensive (Verdun). Divisional Citation.
- DERBY, T. H. (I) Pvt., S. A. T. C., M. I. T.
 DE STAEBLER, H. C. (XV) Pvt., S. A. T. C., M. I. T.
- DIXON, VLADIMIR, (II) Pvt., Sig. C., S. A. T. C., Sept. '18.
- *DOLLBAUM, M. P. (XIII) Student, S. A. T. C., M. I. T. Died of pneumonia, City Hospital, Boston, Mass., 7 Nov. '18. (Not on Honor Roll, not having been inducted, because of age.)
- DOLLE, R. C. (XV) 2d Lt., Inf. Pvt., Off. Tr. Camp, 22 July '18; 2d Lt., Inf., Sept. '18. Plattsburg, N. Y., 22 July '18; Syracuse, N. Y., 26 Sept.—26 Dec. '18.
- DOUGHERTY, ISAAC (V) 1st Lt., F. A. Pvt., Off. Tr. Camp, 12 May '17; 2d Lt., F. A., 15 Aug.; 1st Lt., 17 Sept. '18. 1st Off. Tr. Camp, Plattsburg, N. Y., 12 May '17. A. E. F., 25 May '18—28 May '19; 313th F. A., 80th Div. St. Mihiel Offensive; Meuse-Argonne Offensive.
- DOWLIN, F. F. (XV) Pvt., S. A. T. C., M. I. T.
- DREW, S. T. (I) Pvt., S. A. T. C., M. I. T., 14 Oct.—9 Dec. '18. See Civilian Record.
- DUBÉ, E. N. (I) Pvt., Inf., S. A. T. C., 15 Oct. '18.
- ECKLES, R. A. (IV) Pvt., S. A. T. C., M. I. T., 15 Oct. '18.
- EDSON, A. L. (XV) 2d Lt., A. S. A. Pvt. 1 cl., (Flying Cadet), A. S. A., 5 Sept. '17; 2d Lt., A. S., 9 May '18. School of Military Aeronautics, M. I. T., 3 Nov. '17; Gerstner Field, La., Mch. '18; Ellington Field, Texas, to 11 Jan. '19.
- EDWARDS, E. R. (VI) Pvt., S. A. T. C., M. I. T.
- EKSERGIAN, C. L. (III) Appr. Sea., S. N. T. C., M. I. T.
- EMERSON, H. W. (VI) Appr. Sea., S. N. T. C., M. I. T.
- EMERY, W. A. (II) Pvt., S. A. T. C., M. I. T.
- ENTWISTLE, J. L. (VI) Pvt., Inf., S. A. T. C., 1 Oct. '18.
- EPSTEIN, E. M. (X) Pvt., S. A. T. C., M. I. T.
- ESKEW, R. K. (X) Pvt., S. A. T. C., M. I. T.
- ESNER, ARTHUR (II) Appr. Sea., S. N. T. C., M. I. T.
- EVANS, LAIGHTON (X) Pvt., S. A. T. C., M. I. T.
- EVANS, R. R. (X) Pvt., S. A. T. C., M. I. T.
- EWERTZ, H. N. (XIII) Appr. Sea., S. N. T. C., M. I. T., 1 Oct. '18.
- FACEY, J. A. (II) Appr. Sea., S. N. T. C., M. I. T.
- FAIRBANKS, H. K. (I) Corp., Tank C. Pvt. 1 cl., Tank C., 29 July '18; Corp., 10 Sept. '18. 327th Bn., 307th Brig., Tank C., July '18. A. E. F., 20 Sept. '18—3 May '19.
- FAIRBANKS, R. D. (IX) Pvt. 1 cl., A. S. Entered Service, 21 Feb. '18; School of Military Aeronautics, Princeton, N. J., 15 June '18; Camp Dick, Dallas, Texas, 18 Sept.; Cadet Sq., Souther Field, Ga., 5 Oct.—5 Dec. '18.
- FARMER, G. E. (VI) Sgt. (Bugler), S. A. T. C., 10 Oct. '18.
- FAREN, M. F. (IV) Pvt., S. A. T. C., 9 Oct.—17 Dec. '18. See Civilian Record.
- FEATHERMAN, SIDNEY (XV) Appr. Sea., S. N. T. C., M. I. T.

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- FELSENTHAL, R. M. (X) Pvt., S. A. T. C., M. I. T.
- FERGUSON, J. S. (X) Ensign, U. S. N. R. F. Q. M. 3 cl., U. S. N. R. F., 1 May '17; C. B. M., Oct.; Ensign, 11 Feb. '18. U.S.S. Topeka, May '17; Bumkin Island, July; Cadet School, Harvard University, Oct.; U.S.S. Utah, Mech. '18; U.S.S. Samson (Torpedo-Boat Destroyer), Convoy Duty, Brest, July '18; Flag Officer, Brest, Aug.; Communication Duty, American Peace Commission, Vienna and Budapest, Feb.—May '19. (Page 229.)
- FERGUSON, N. E. (I) Appr. Sea., S. N. T. C., M. I. T.
- FESTORAZZI, A. O. (II) Pvt., S. A. T. C., M. I. T.
- FIELD, H. P. (VI) Pvt., S. A. T. C., M. I. T.
- FINCH, H. F. (II) Pvt., S. A. T. C., M. I. T.
- FISCHER, H. A. (II) Pvt., S. A. T. C., M. I. T.
- FISHER, BENJAMIN, JR. (H) Pvt., S. A. T. C., M. I. T., 14 Oct. '18.
- FLAHERTY, F. T. (X) 2d Lt., F. A. Pvt. (Cadet), 30 May '17; 2d Lt., F. A., 17 Nov. '17. Madison Barracks, N. Y., 30 May '17; Ft. Niagara, N. Y., 17 Aug.; 128th F. A., Camp Custer, Mich., Nov.; F. A. Repl. Depot Camp Jackson, S. C., May '18; School of Fire, Ft. Sill, Okla., July; 58th F. A., Ft. Ethan Allen, Vt., Sept. '18.
- FLEMING, HARTWELL (I) Pvt., S. A. T. C., 10 Oct. '18.
- FLETCHER, A. H. (XI) Appr. Sea., S. N. T. C., M. I. T.
- FORD, J. B. (XIII) Appr. Sea., S. N. T. C., M. I. T.
- FOSS, W. L., reported at Motor Transport Off. Tr. Sch. in West.
- FOSTER, W. P. (II) Pvt., S. A. T. C., M. I. T.
- FOX, G. M., JR. (VI) Pvt., S. A. T. C., M. I. T.
- FREDRICKSON, G. O. (VI) Sea., 2 cl., U. S. N. R. F., 8 Apr. '18. S. N. T. C., M. I. T., 10 Oct.—17 Dec. '18.
- FREEMAN, E. W. (II) Appr. Sea., S. N. T. C., M. I. T.
- FROST, L. E. (VI) Pvt., S. A. T. C., M. I. T.
- FROST, T. H. (X) 1st Lt., Inf. 2d Lt., Inf. 26 Oct. '17; 1st Lt., 31 Oct. '17. 54th Inf., Oct. '17. A. E. F., June '18—July '19. Meuse-Argonne Offensive. Disch., 8 Oct. '19.
- GAHAGAN, F. M. (X) Appr. Sea., S. N. T. C., M. I. T.
- GARDNER, C. T. (I) Pvt., S. A. T. C., 10 Oct. '18.
- GARRIGUS, A. C. (II) Appr. Sea., S. N. T. C., M. I. T.
- GATEWOOD, A. R. (XIII) 2d Lt., Inf. 1st Sgt., S. A. T. C., Oct. '18; 2d Lt., Inf., 26 Oct. '18. S. A. T. C., M. I. T., 1 Oct. '18; 151st Depot Brig., Camp Devens, Mass., 26 Oct.—15 Dec. '18.
- GENASKE, A. S. (I) Pvt., S. A. T. C., M. I. T.
- GEORGE, E. B. (X) Pvt., S. A. T. C., M. I. T.
- GIDDENS, Z. P., JR. (XV) Pvt., S. A. T. C., M. I. T.
- GILES, J. M. (III) Pvt., S. A. T. C.
- GOFF, LUTHER (II) Corp., S. A. T. C., 1 Oct. '18.
- GOODMAN, A. H. (II) Pvt., S. A. T. C., M. I. T.
- GORDON, E. R. (III) Pvt., Marine Corps. Harvard Detachment, Cambridge, Mass., Oct.—Dec. '18.
- GRAY, J. A. (II) Appr. Sea., S. N. T. C., M. I. T.
- GREENE, A. B. (I) Pvt., S. A. T. C., M. I. T., 10 Oct.—15 Dec. '18.
- GREENE, C. D. (X) Sea., 2 cl., U. S. N. R. F., Apr. '18. S. N. T. C., M. I. T., Oct. '18.
- GREENWOOD, T. S. (XIII) Pvt., S. A. T. C., M. I. T.
- *GRIFFIN, R. B. (XV). See Roll of Honor (page 123).
- GRIFFIN, S. P. (I) Pvt., C. A. C. Fort Standish, Boston Harbor, Mass., 29 Oct. '18—27 Apr. '19. See Civilian Record.
- GRIFFITH, H. G. (X) Pvt., S. A. T. C., M. I. T.
- GRIFFITH, P. W. (V) Pvt., S. A. T. C., Dartmouth Unit, 3 Oct. '18.
- GRIMMONS, J. A. (VI) Pvt., S. A. T. C., M. I. T.
- GRISWOLD, H. D. (XV) 2d Lt., Inf. Comm. on Education and Special Training, 18 July '18—3 Jan. '19.
- GUILD, J. H. (XV) Mechanic, Ambulance Service, '18. A. E. F., '18—'19; Sect. No. 555, with 13th Bn., Italian Army.
- GWYNN, H. W. (II) Pvt., S. A. T. C., M. I. T., 10 Oct.—9 Dec. '18.
- HADDEN, WESTON (VI) Appr. Sea., S. N. T. C., M. I. T.
- HAGERTON, W. C. (VI) Pvt., S. A. T. C., M. I. T.
- HAIGH, E. R. (XV) Pvt., S. A. T. C., 3 Oct. '18.
- HAINES, H. R. (VI) Pvt., Inf. R. O. T. C., Plattsburg, N. Y., June '18; Presidio of San Francisco, 10 July; S. A. T. C., University of California, Sept. '18.
- HALLINAN, C. J. (XV) Pvt., S. A. T. C., M. I. T.

TECHNOLOGY'S WAR RECORD

- HALTERMANN, H. L. (XV) 2d Lt., Inf. Plattsburg Training Camp, 7 Aug. '18; Post Exchange and Drill Officer, Northeastern College, until 26 Dec. '18.
- HAMBÜRGER, M. V. (X) Pvt., S. A. T. C., M. I. T., 31 Sept. '18.
- HAMILTON, L. M. (XV) reported 2d Lt., Inf., '18.
- HAMMOND, C. W. (II) Pvt., S. A. T. C., M. I. T.
- HANLEY, A. J. (X) Pvt., S. A. T. C., M. I. T.
- HANSON, P. L. (I) Pvt., S. A. T. C., Oct. '18.
- HARDIN, E. A. (I) Pvt., 1 cl., M. C. Pvt., 13 Dec. '17; Pvt., 1 cl., Apr. '18. Base Hospital No. 28, 13 Dec. '17. A. E. F., 12 June '18—16 July '19; Base Hospital, Limoges, June '18; Student, Université d' Aix, Marseille, Mch.—June '19.
- HART, MORRIS (X) Pvt., S. A. T. C., 30 Sept.—21 Dec. '18.
- HARTMAN, G. O. (I) 2d Lt., Inf. S. A. T. C., Plattsburg, N. Y., July '18; Repl. Camp, Camp Grant, Ill., Sept. '18.
- HARVEY, A. D. (II) 2d Lt., C. A. R. C. Pvt., C. A. C., 23 Sept. '18; 2d Lt., C. A. R. C., 10 Jan. '19. C. A. Sch., Ft. Monroe, Va., 23 Sept. '18—10 Jan. '19.
- HARVEY, J. D. (II) Pvt., S. A. T. C., M. I. T.
- HASKEL, R. W. (II) Appr. Sea., S. N. T. C., M. I. T.
- HASSOLD, V. C. (II) Appr. Sea., S. N. T. C., M. I. T.
- HASTINGS, W. F. (VI) Pvt., S. A. T. C., M. I. T.
- HATCH, H. R., JR. (II) 2d Lt., F. A. Pvt., 1 cl., F. A., 16 May '18; 2d Lt., 31 Aug. '18. 4th Off. Tr. Camp, F. A., Camp Devens, Mass., 16 May '18; Camp Taylor, Ky., 28 June; Btry. A, 16th Bn., F. A. Repl. Depot, 7 Sept.; Hq. Co., 6th Regt. F. A. Repl. Depot, 15 Oct.—21 Dec. '18.
- HATCH, P. H. (VI) Appr. Sea., S. N. T. C., M. I. T., 1 Oct.—17 Dec. '18.
- HATHEWAY, D. H. (VI) Pvt., Co. B, S. A. T. C., M. I. T., 10 Oct.—15 Dec. '18. See Civilian Record.
- HAUBER, J. G. (XIII) Appr. Sea., S. N. T. C., M. I. T., 10 Oct.—17 Dec. '18.
- HAWES, M. C. (X) Appr. Sea., S. N. T. C., M. I. T.
- HAYES, JAMES (X) Pvt., S. A. T. C., M. I. T.
- HAYWARD, ROGER (IV) Sea., U. S. N. R. F. Portsmouth Navy Yard, N. H., 10 Apr. '17; Bumkin Island, 3 July; S. N. T. C., M. I. T., 10 Oct.—17 Dec. '18.
- HAYWARD, SUMNER (X) Pvt., S. A. T. C., M. I. T.
- HAYWOOD, E. W. (X) Pvt., S. A. T. C., M. I. T.
- HAZARD, SCHUYLER, JR. (I) Corp., Tank C. Pvt., Tank C., 12 July '18; Corp., 10 Sept. 379th Tr. and Repl. Co., Gettysburg, 12 July '18. A. E. F., 24 Sept. '18—28 Feb. '19; Hq. Co., 331 Bn. Tank C., 30 Oct. '18. Meuse-Argonne Offensive, 5-11 Nov. '18. Gassed, 9 Nov. '18.
- HEMEON, J. R. (II) Pvt., S. A. T. C., M. I. T., Oct.—Dec. '18. See Civilian Record.
- HERMANN, E. R. (II) Pvt., S. A. T. C., M. I. T.
- HERMANN, F. H. (VII) Appr. Sea., S. N. T. C., M. I. T.
- HERSUM, LeR. M. (I) 2d Lt., F. A. Mess Sgt., S. A. T. C., 5 July '18; 2d Lt., F. A., 16 Sept. '18. S. A. T. C., Plattsburg, N. Y., 5 July '18; F. A. Cent. Off. Tr. Sch., Camp Taylor, Ky., 16 Sept. '18.
- HICKERNELL, L. F. (VI) Pvt., S. A. T. C., M. I. T.
- HICKEY, T. F., (II) Appr. Sea., S. N. T. C., M. I. T., 10 Oct.—21 Dec. '18.
- HILL, F. T. (II) Pvt., S. A. T. C., 10 Oct.—15 Dec. '18.
- HINDES, B. G. (II) C. M. M., U. S. N. R. F. Sea., 2 cl., U. S. N. R. F., 23 Mch. '18; C. M. M., 13 Nov. '18. San Pedro, Calif.; Pelham Bay, N. Y.
- HINES, J. J. JR., (XV) Appr. Sea., S. N. T. C., M. I. T.
- HOLE, R. J. (XV) 1st Lt., C. A. C. 2d Lt., C. A. C., 24 Sept. '17; 1st Lt., Sept. '18. C. A. Sch., Ft. Monroe, Va., Sept. '17. A. E. F., Nov. '17—'18; Orientation Officer, 3d Bn., 51st F. A. Troyon Sector; St. Mihiel Offensive; Meuse-Argonne Offensive.
- HOLMES, F. O. (VII) Pvt., S. A. T. C., M. I. T.
- HONIG, A. R., JR. (VI) Appr. Sea., S. N. T. C., M. I. T.
- HOOPS, L. F. (X) 2d Lt., Aviation Sect., Sig. R. C. Pvt., 1 cl., Aviation Sect., Sig. C., '18. 2d Lt., Aviation Sect., Sig. R. C., '19. School of Military Aeronautics, M. I. T., '18; Dallas, Texas; Cadet Detachment, Carlstrom Field, Fla., Mch. '19.
- HOWARD, E. I. (XIII) Sea., U. S. N. R. F., 2 Apr. '17.
- HOWARD, E. M. (I) Pvt., C. A. C. Off. Tr. Sch., Ft. Monroe, Va., 24 Oct.—22 Nov. '18. See Civilian Record.
- HOWE, P. C. (I) Pvt., S. A. T. C., M. I. T.
- HUDNUT, F. P., JR. (VII) Appr. Sea., S. N. T. C., M. I. T.
- HUGGINS, F. E., JR. (X) Pvt., S. A. T. C., M. I. T.
- HULL, J. T. (II) Pvt., S. A. T. C., M. I. T.

REGISTER OF MILITARY RECORDS

- HUNTER, N. W. (I) Appr. Sea., S. N. T. C., M. I. T.
- HURLEY, J. L. (XV) Appr. Sea., S. N. T. C., M. I. T.
- HYSOBI, R. H. (II) Ensign, U. S. N. R. F. (A.). Sea, 2 cl., U. S. N. R. F., 17 May '17; C. Q. M. (A.); Ensign, Naval Aviation Det., M. I. T.; Rockaway Beach; Inst., Akron, Ohio, and Key West, Fla.
- IRWIN, W. H. (XV) Corp., S. A. T. C. Off. Tr. Camp, Plattsburgh, N. Y., June '18; S. A. T. C., Plattsburg, July; Disch., under age, Sept.; in command of a Junior company, S. A. T. C., M. I. T., Oct.—Dec. '18. See Civilian Record.
- JACKSON, A. L. (XIII) Appr. Sea., S. N. T. C., M. I. T., 1 Oct. '18. See Civilian Record.
- JACKSON, D. C., JR. (VI) 2d Lt., C. A. C. Pvt., Off. Tr. Camp, 12 May '17; 2d Lt., C. A. R. C., 15 Aug. '17. 1st Off. Tr. Camp, Plattsburg, N. Y., 12 May '17; Coast Defense of Boston, Ft. Standish, 29 Aug. '17. A. E. F. 23 Sept. '18—29 Apr. '19; Heavy Arty. Tr. Bn., 42d Arty., C. A. C., Angers; Member, War Damages in Allied Countries Bd., American Comm. to Negotiate Peace; Inst., A. E. F. University, Beaune.
- JACKSON, E. W. (II) Pvt., S. A. T. C., M. I. T.
- JAKOBSON, I. D. (XIII) Sea, 2 cl., U. S. N. R. F., Apr. '18. S. N. T. C., M. I. T.
- JANES, L. R. (VI) Lt. (j. g.), U. S. N. R. F. Q. M. 1 cl., Naval Auxiliary Reserve, 9 June '17; Ensign, U. S. N. R. F., 18 May '18; Lt. (j. g.), 14 Nov. '18. 2d in command, Submarine Patrol 1011, Great Lakes, June '17; Naval Reserve Tr. Station, Pelham Bay, N. Y., Jan. '18; Deck Officer, U.S.S. Osterdyk, transatlantic supply ship, 21 June '18; sunk in mid-ocean as result of collision, 10 July '18; U.S.S. Hisko, 4 Sept.—25 Dec. '18.
- JENNEY, M. R. (VI) Appr. Sea., S. N. T. C., M. I. T.
- JENSEN, A. C. (XV) Pvt. 1 cl., A. S., '18. Cornell University, Ithaca, N. Y.
- JETTER, KARL (I) Pvt., S. A. T. C., M. I. T.
- JOHNSON, A. J. (XIV) Pvt., S. A. T. C., M. I. T., 19 Oct. '18.
- JOHNSON, C. H. R. (II) Pvt., S. A. T. C., 11 Oct. '18. See Civilian Record.
- JOHNSON, R. C. (III) Pvt., S. A. T. C., M. I. T.
- JOHNSON, S. (XIII) Pvt., S. A. T. C., M. I. T.
- JOHNSTON, S. P. (II) Pvt., 1 cl., A. S. (Cadet Pilot, A. S. A.), Prov. Tr. Regt., Off. Tr. Camp, Plattsburg, N. Y., 3 June '18; School of Military Aeronautics, Princeton, N. J., 26 July—26 Nov. '18.
- JONES, E. V. (II) Pvt., S. A. T. C.
- KAIN, G. A., Jr. (VI) Pvt., S. A. T. C., 10 Oct. '18.
- KAPLAN, HERBERT (IV) 1st Lt., Inf. Hq., Camp Dix, N. J., Sept. '17; Camp Gordon, Ga., 13 May '18; Camp Hancock, 25 June; Camp Dix, 25 Dec. '18—15 Aug. '19.
- KAPLAN, M. J. (X) Appr. Sea., S. N. T. C., M. I. T.
- KASCH, R. M. (II) Sea, 2 cl., U. S. N. R. F. Officer Material School, 1st Naval Dist., 8 Apr.—2 Dec. '18; Civil Engr. duties, Charlestown Navy Yard, 2 Dec. '18—1 Feb. '19.
- KAUFMANN, H. A. (X) Pvt., S. A. T. C., M. I. T., 7 Oct. '18.
- KEENAN, F. J. (X) Pvt., S. A. T. C., M. I. T.
- KEITH, J. B. (X) Pvt., S. A. T. C., M. I. T.
- KELSEY, J. R. (III) Pvt., S. A. T. C., M. I. T.
- KENDALL, J. W. (XV) 2d Lt., C. A. R. C. Pvt., C. A. C., 2 Mch. '18; Elec. Sgt. 1 cl., 20 Sept.; 2d Lt., C. A. R. C., 6 Dec. '18. Enlisted, Ft. Scott, Calif., 2 Mch. '18; Electrical Course, Ft. Monroe, Va., 10 Mch.; Co. C, 6th C. A. C. Tr. Camp, Ft. Monroe. Disch., 5 Dec. '18. See Civilian Record.
- KEPNER, D. E. (XI) Pvt., S. A. T. C., M. I. T., 11 Oct. '18.
- KERRIGAN, A. L. (VI) Pvt., Inf., S. A. T. C., 1 Oct. '18.
- KILEY, A. J. (II) Pvt., S. A. T. C., 15 Oct.—17 Dec. '18.
- KIMBALL, P. B. (VI) Appr. Sea., S. N. T. C., M. I. T.
- KIRKPATRICK, A. N. (X) Pvt., S. A. T. C., 10 Oct. '18.
- KITSON, S. W. (XV) 2d Lt., C. A. R. C. Pvt., C. A. C., 7 July '18; 2d Lt., C. A. R. C., 30 Jan. '19. Coast Defense of Boston, 7 July '18; C. A. Off. Tr. Sch., Ft. Monroe, Va., 30 Sept. '18—30 Jan. '19.
- KITTREDGE, F. B. (I) 2d Lt., C. A. R. C. Pvt., C. A. C., '18; 2d Lt., C. A. R. C., 3 Jan. '19. Ft. Monroe, Va., '18—3 Jan. '19.
- KITTREDGE, W. W. (I) Pvt., S. A. T. C., Oct.—Dec. '18.
- KLOCHE, E. L. (II) Pvt., S. A. T. C., M. I. T.
- KNIGHT, C. S. (I) Appr. Sea., S. N. T. C., Oct. '18.
- KNOEPKE, W. L. (VI) Pvt., S. A. T. C., New York University, 1 Oct.—19 Dec. '18.
- KOHL, W. C. (VI) Appr. Sea., S. N. T. C., M. I. T.
- KRUSE, V. N. (IV) Pvt., S. A. T. C., M. I. T.
- LACY, K. B. (X) Pvt., S. A. T. C., 10 Oct. '18.
- LANDIS, H. N. (X) Pvt., S. A. T. C., M. I. T.

TECHNOLOGY'S WAR RECORD

- LANE, H. M. (VI) Pvt., S. A. T. C., M. I. T.
 LAPOINTE, A. J. (X) Pvt., S. A. T. C., M. I. T., 8 Oct. '18.
 LEACH, R. W. (X) Pvt., S. A. T. C., M. I. T.
 LEE, J. G. (II) Cadet Corp., Co. B, Inf., S. A. T. C., M. I. T., 10 Nov.—10 Dec. '18.
 LEFEVRE, G. H. (III) Pvt., S. A. T. C., M. I. T.
 LESLIE, J. R. (IX) Pvt., 1 cl., C. A. C. C. A. Tr. Sch., Ft. Monroe, Va., until Dec. '18.
 LESSER, L. L. (I) Appr. Sea., S. N. T. C., M. I. T., 14 Oct. '18.
 LEVENSOHN, H. J. (XV) Appr. Sea., S. N. T. C., M. I. T., 1 Oct. '18.
 LEWIS, R. R. (XV) Appr. Sea., S. N. T. C., M. I. T., 2 Oct.—17 Dec. '18.
 LITEHISER, R. R. (XV) 2d Lt., F. A. Pvt., F. A., 3 Oct. '17; Sgt., 3 Nov.; 2d Lt., 1 June '18. Btry. A, 322d F. A., 3 Oct. '17; 3d Off. Tr. Camp, Camp Sherman, Ohio, 5 Jan. '18; Camp Jackson, S. C., 6 May '18. A. E. F., 20 May '18—13 Mch. '19; Arty. Sch., Saumur, June '18; Btry. C, 106th F. A., 12 Sept.; Hq. Co., 106th F. A., 52d Brig., Lonvoigne, Feb. '19. Meuse-Argonne Offensive.
 LLOYD, L. A. (II) Pvt., S. A. T. C., M. I. T.
 LOESCH, W. G. (III) Appr. Sea., S. N. T. C., M. I. T.
 LORD, G. F. (XV) Pvt., S. A. T. C., M. I. T., 10 Oct. '18.
 LOVIS, D. B. (XV) Pvt., S. A. T. C., M. I. T.
 LUCE, R. E. (II) Pvt., S. A. T. C., M. I. T.
 LUKE, W. E. (IV) Pvt., S. A. T. C., M. I. T.
 LUNDEN, S. E. (IV) Pvt., S. A. T. C., M. I. T.
 LURIE, JOSEPH (X) Pvt., S. A. T. C., M. I. T.
 McALLISTER, D. G. (VI) Pvt., S. A. T. C., 10 Oct. '18. See Civilian Record.
 McARN, T. A. (II) 2d Lt., A. S. A. Pvt., C. A. C., 7 May '17; Cadet, Aviation Sect., Sig. C.; 2d Lt., A. S. A. R. M. A., 25 July '18. Enlisted C. A. C., 7 May '17; transferred to A. S. Canal Zone; Nicaragua; Porto Rico.
 McARTHUR, D. E. (XV) Appr. Sea., S. N. T. C., M. I. T.
 McCLELLAND, J. M., (II) Pvt. S. A. T. C., M. I. T.
 McCOMB, W. L. (II) Pvt., S. A. T. C., M. I. T.
 MacDONALD, E. J. (I) Pvt., S. A. T. C., M. I. T.
 MacDONALD, J. J. (VII) Pvt., S. A. T. C., M. I. T.
 McGILL, C. F. (IV) Pvt., S. A. T. C., 1 Oct.—14 Dec. '18.
 McGORUM, W. B. (II) Appr. Sea., S. N. T. C., M. I. T.
 McKAY, RICHARD (XV) Pvt., S. A. T. C., M. I. T., 10 Oct. '18.
 MacKINNON, CHARLES (II) Pvt., S. A. T. C., M. I. T.
 McKINSTRY, H. E. (XII) Capt., Amer. Red Cross. A. E. F., France, Sept. '17—Feb. '19. Berlin, Germany, with Comm. for Allied Prisoners, under Inter-Allied Comm., Feb.—Aug. '19.
 McMAHON, T. L. (X) Pvt., S. A. T. C., M. I. T.
 MacMANUS, F. J. (I) Pvt., S. A. T. C., M. I. T.
 MacMILLIN, H. F. (II) Sea., 2 cl., U. S. N. R. F., 9 Apr. '18. S. N. T. C., M. I. T., Sept. '18. See Civilian Record.
 McNAUL, J. W. (II) Pvt., Engr. E. R. C., 1 Mch. '18; S. A. T. C., 1 Oct.—10 Dec. '18. See Civilian Record.
 MacNEIL, D. M. (III) Pvt., S. A. T. C., M. I. T.
 MacNEIL, J. J. (VI) Pvt., S. A. T. C., M. I. T.
 McNELLIS, J. S. (II) Pvt., S. A. T. C., M. I. T.
 MacLACHLAN, A. D., JR. (II) Bugler, S. A. T. C., M. I. T., 1 Oct.—19 Dec. '18.
 MACONI, FRANK (XIII) Appr. Sea., S. N. T. C., M. I. T.
 MAFFITT, H. C. (V) 1st Lt., Sn. C. Pvt., Water Supply Service, Sn. C, 12 Mch. '18; Pvt. 1 cl., 21 Mch.; Sgt., 16 Aug.; 2d Lt., 28 Oct.; 1st Lt., 3 May '19. A. E. F., 29 Mch. '18—18 July '19; Base Sect. No. 2. See Civilian Record.
 MAHONEY, J. A. (X) Pvt., S. A. T. C., M. I. T.
 MANDEL, LOUIS (II) Corp., S. A. T. C., 1 Oct. '18.
 MANDELL, H. C. (X) Pvt., S. A. T. C., M. I. T.
 MASON, MAURICE (X) Pvt., S. A. T. C., M. I. T., 10 Oct.—17 Dec. '18.
 MATTSON, J. B. (VI) Pvt., Engr. E. R. C., 25 Jan. '18. S. A. T. C., M. I. T., 14 Oct. '18.
 MELLEN, R. J. (III) C. Q. M. (A.), U. S. N. R. F. Naval Training Station, Seattle, Wash., May '18; Naval Air Station, Key West, Fla., Aug.—Dec. '18.
 MERRILL, EDGERTON (X) Pvt., Marine Corps. Marine Unit, Cambridge, Mass., 15 Oct.—16 Dec. '18. See Civilian Record.

REGISTER OF MILITARY RECORDS

- MINER, G. L., JR. (I) Sgt., S. A. T. C. Carleton-St. Olaf Unit, S. A. T. C., 1 Oct. '18.
- MITCHELL, FRANKLIN (X) Pvt., S. A. T. C., M. I. T.
- MITCHELL, TERRY (II) Pvt., 1 cl. (Cadet Pilot), A. S. Ground School, Cornell University, N. Y., 2 Nov. '18; Ground School, Austin, Texas, Nov.; Park Flying Field, Memphis, Tenn., 8 Feb. '19. See Civilian Record.
- MOBLEY, W. M. (X) Pvt., S. A. T. C., Auburn, Ala., 1 Oct. '18.
- MOORE, H. D. (II) Pvt., S. A. T. C., M. I. T.
- MOORE, R. L. (XV) 1st Lt., A. S. A. Pvt., A. S., 17 May '17; 1st Lt., 12 Dec. '17. A. E. F., 23 July '17—Feb. '19; served at Tours, Issoudun and Cazaux, France; Hythe, England; Clermont-Ferrand, France; Escadrille Br. 29 at Front. Aisne Defensive. Wounded at Soissons, 12 June; in hospitals in Jouilly, Paris, Savenay and Biarritz. Croix de Guerre with Palm.
- MOORES, K. A. (XIV) 2d Lt., (Bombing Pilot), A. S. A. Entered Service, 16 Nov. '17; School of Military Aeronautics, Berkeley, Calif., Jan. '18; Rockwell Field, Calif., Mich.; Camp Dick, Texas, June; Wilbur Wright Field, Ohio, July; Camp Dick, Aug.; Ellington Field, Texas, Aug. '18—Mich. '19.
- MORAN, B. H. (II) Pvt., S. A. T. C., M. I. T.
- MORETON, S. E., JR. Pvt., S. A. T. C., M. I. T., 10 Oct. '18.
- MORGAN, P. A. (X) Pvt., S. A. T. C., M. I. T.
- MORRELL, J. C. (II) Appr. Sea., S. N. T. C., M. I. T.
- MORRISON, W. D. (I) 2d Lt., Inf. Off. Prov. Tr. Bn., Plattsburg, N. Y., 15 July '18; Repl. Camp, Camp Grant, Ill., 16 Sept. '18. Hurt in bayonet practice; 2 months in General Hosp. No. 30.
- MORSE, D. G. (X) Appr. Sea., S. N. T. C., M. I. T., Oct. '18.
- MORSS, C. A., JR. (XV) Pvt., 1 cl., Aviation Sect., Sig. C. Entered Service, 3 Jan. '18; Ground School, M. I. T., 11 May '18; Camp Dick, Texas, 10 Aug.; School of Fire, Ft. Sill, Okla., 14 Sept.; Post Field, Ft. Sill, Okla., 2 Nov.—15 Dec. '18.
- MOSS, L. W. (I) Sea., 2 cl., S. N. T. C., M. I. T., 12 Sept. '18.
- MUNCE, M. G. (II) 2d Lt., F. A. F. A. Cent. Off. Tr. Sch., Camp Taylor, Ky., 15 May '18.
- MURPHY, T. F. (VD) Pvt., S. A. T. C., M. I. T.
- MYERS, H. M. (X) Pvt., S. A. T. C., M. I. T.
- NAIGLES, M. H. (VI) Appr. Sea., S. N. T. C., M. I. T.
- NEITZKE, O. F. (X) Pvt., S. A. T. C., M. I. T.
- NELSON, C. B. (XIII) Appr. Sea., S. N. T. C., M. I. T.
- NICHOLS, S. E. (XV) Pvt., S. A. T. C., M. I. T.
- NIXON, STUART (XV) Pvt., S. A. T. C., 17 Oct. '18. See Civilian Record.
- NOCK, H. K. (VI) Pvt., S. A. T. C., M. I. T.
- NOELKE, H. M. (II) Pvt., S. A. T. C., M. I. T.
- NORBERG, E. M. (I) Pvt., S. A. T. C., M. I. T.
- NORTON, A. W. (XV) Cadet, Naval Aviation Detachment, M. I. T., 11 July '18.
- NOYES, E. W. (III) Pvt., S. A. T. C., M. I. T.
- OFFICER, R. F. (XV) 2d Lt., F. A. Pvt., Off. Tr. Camp, 29 July '18; 2d Lt., F. A., Dec. '18. Plattsburg, N. Y., 29 July '18; F. A. Cent. Off. Tr. Sch., Camp Taylor, Ky.
- OLCOTT, E. W. (VI) Pvt., S. A. T. C., M. I. T.
- OLSON, F. F. (III) Appr. Sea., S. N. T. C., M. I. T.
- O'NEIL, F. J. (II) Pvt., S. A. T. C., M. I. T.
- *ORAM, S. S. (VI) Pvt., S. A. T. C., M. I. T. Died March 30, 1919.
- ORLINGER, A. A. (X) 1st Sgt., S. A. T. C. S. A. T. C., Plattsburg, N. Y., 19 July '18; 1st Sgt., Co. A, S. A. T. C., College of City of New York, 17 Sept.—7 Dec. '18.
- PAINTER, C. R. (II) Appr. Sea., U. S. N. R. F. S. N. T. C., M. I. T.
- PARKER, C. F. (XIII) Pvt., Marine Corps. Port Royal, N. C., 8 May '18; Quantico, Va. A. E. F., July '18—June '19; 17th Co., 5th Regt., Marine Corps. St. Mihiel Offensive; Champagne Offensive (Blanc Mont); Meuse-Argonne Offensive (Landres-St. Georges); Army of Occupation. Gassed. (Page 174.)
- PATTON, N. F. (VI) Pvt., S. A. T. C., M. I. T.
- PAULI, ERNEST (XV) Pvt., C. W. S., Dec. '17.
- PAYSON, P. P. (II) Sgt., S. A. T. C. R. O. T. C., Plattsburg, N. Y., 3 June—3 July '18; S. A. T. C., M. I. T., 10 Oct.—11 Dec. '18.
- PEABODY, E. G. (II) Pvt., S. A. T. C., M. I. T., Sept. '18.
- PEARLSTEIN, M. B. (I) Appr. Sea., S. N. T. C., M. I. T., 10 Oct. '18. See Civilian Record.
- PEARSON, E. A. (V) Pvt., S. A. T. C., M. I. T.
- PEARSON, H. C. (X) Pvt. 1 cl., (Cadet), A. S., 26 Jan. '18. Camp Dick, Texas, and Princeton University, N. J.
- PEIRCE, R. M. (II) Appr. Sea., S. N. T. C., M. I. T.

TECHNOLOGY'S WAR RECORD

- PHANEUF, V. S. (II) Sea. 2 cl., U. S. N. R. F., 22 Mch. '18. S. N. T. C., M. I. T., 11 Oct.—17 Dec. '18.
- PIKE, M. B. (VI) Pvt., F. A. Btry. B, 2d Regt., F. A. Repl. Depot, Camp Taylor, Ky., 7 Aug.—15 Dec. '18.
- PINE, R. L. (II) Appr. Sea., S. N. T. C., M. I. T.
- PISTON, D. S. (VIII) Pvt., S. A. T. C., M. I. T.
- POOLE, R. C. (II) Sgt., Inf., S. A. T. C., M. I. T., 1 Sept. '18.
- POWELL, A. P. (XIV) 2d Lt., Inf. Pvt., Inf., 18 July '18; 2d Lt., 16 Sept. '18. S. A. T. C., Plattsburg, N. Y., 18 July '18; S. A. T. C., Richmond College, Va., 23 Sept.—26 Dec. '18. Acted as 2d in command to a Colonel (retired) as Capt. of Co. A, Post Exchange, Mess and 4th Liberty Loan Officer.
- PRAETZ, E. F. (II) Pvt., S. A. T. C., 11 Oct.—12 Dec. '18.
- PRATT, H. C. (II) 2d Lt., Marine Corps. Sea. 2 cl., U. S. N. R. F., 31 May '17; Ensign, U. S. N. R. F. (A.), 9 Mch. '18; transferred as 2d Lt., Marine Flying Corps, 19 Aug. '18. Naval Aviation Detachment, M. I. T., 23 July '17; Flying Sch., Norfolk, Va., Oct.; Naval Air Station, Pensacola, Fla., Dec.; disabled in aviation accident and unable to go overseas; Naval Aviation Detachment, M. I. T., Aug. '18—31 July '19.
- PROCTOR, T. W. (I) 1st Lt., Army Service C. 2d Lt., Inf., 25 Aug. '17; 1st Lt., 23 Mch. '18; transferred to Army Service C., 17 Dec. '18. 49th Inf., Aug. '17. A. E. F., 26 July '18—25 Jan. '19.
- PURNELL, L. J. (VI) 2d Lt., Inf. Tr. Detachment, 4 July '18.
- RANDALL, J. H. (II) Sea. 2 cl., S. N. T. C., 10 Oct.—21 Dec. '18.
- RAPHAEL, R. M. (X) Pvt., S. A. T. C., M. I. T.
- RAYMOND, N. G. (II) Appr. Sea., S. N. T. C., M. I. T., 1 Oct.—Dec. '18.
- READY, W. C. (I) Corp., Inf., S. A. T. C., 10 Oct.—Dec. '18.
- REINHARD, H. W. (XV) Corp., Inf., S. A. T. C., Sept. '18.
- RICHARDS, C. W. (X) Pvt., S. A. T. C., M. I. T.
- RICHARDSON, E. M. (I) Appr. Sea., S. N. T. C., M. I. T.
- RIMMER, C. A. (XIII) Appr. Sea., S. N. T. C., M. I. T.
- ROBBINS, D. A. (II) Appr. Sea., S. N. T. C., M. I. T.
- ROBERTS, E. B. (I) Pvt., S. A. T. C., M. I. T., 10 Oct.—17 Dec. '18.
- ROGERS, A. F. (I) Pvt., S. A. T. C., M. I. T.
- ROGERS, B. F. (X) Pvt., S. A. T. C., M. I. T.
- ROSE, W. H. F., JR. (X) Appr. Sea., S. N. T. C., M. I. T., 12 Oct.—15 Dec. '18.
- ROSENFELD, HARRY (X) Pvt., S. A. T. C., M. I. T.
- ROSS, S. W. (IV) Corp., Engrs. Pvt., Engrs., 23 Apr. '17; Corp., 15 June '17. Co. B, 101st Engrs., Camp Devens, Mass. A. E. F., 26 Sept. '17—1 Feb. '19; Northwest-of-Toul Sector, 1 Apr.—28 June; Aisne-Marne Offensive (Château-Thierry), 4-24 July '18. Shell shocked, La Croisette Woods, 24 July '18.
- ROSS, W. S. (VI) Corp., Sig. C. Pvt., Sig. C., 12 May '17; Corp., Co. B, 301st Field Signal Bn. A. E. F., 1 Aug. '18—16 May '19. 2d Army Offensive.
- ROWELL, E. P., JR. (XIII) Appr. Sea., S. N. T. C., M. I. T.
- ROWELL, F. M. (II) Pvt., S. A. T. C., 27 Sept. '18.
- RUDOW, E. W. (X) 2d Lt., F. A. Pvt., C. A. C., 9 Apr. '17; Corp. Sgt.; 2d Lt., F. A., 1 June '18. 63d Arty., C. A. C., 9 Apr. '17. A. E. F., 5 June '18—12 Feb. '19; Arty. Sch., Saumur; 156 F. A. Brig.; 43d, 15th and 16th Balloon Companies; Balloon School, Souge; St. Mihiel and Meuse-Argonne Offensives. Wounded 24 Oct. '18.
- RUNDLETT, R. C. (XV) Appr. Sea., S. N. T. C., M. I. T., 1 Oct. '18. Station Rating, Petty Officer.
- RULE, J. T. (XV) Pvt., S. A. T. C., M. I. T.
- RUSSELL, E. S. (II) Pvt., S. A. T. C., M. I. T., 30 Sept. '18. See Civilian Record.
- SAFFORD, G. S. (X) Pvt., S. A. T. C., M. I. T.
- ST. LAURENT, R. A. (X) Appr. Sea., S. N. T. C., M. I. T.
- SARGENT, J. C. (VI) Student Flight Officer, U. S. N. R. F., July '18.
- SARGENT, RALPH (II) Ensign, (R. F.) U. S. N. M. M. 2 cl., U. S. N. R. F., 12 July '17; Ensign, U. S. N. R. F., June '18; Ensign, (R. F.), U. S. N., Sept. '18. Atlantic Fleet, 12 July '17—3 May '18; Naval Academy, Annapolis, Md., 11 June '18; Jr. Officer, Fireroom Station, U.S.S. Georgia, Crusier and Transport Force, 18 Sept.; Receiving Ship, Norfolk, Va., 2-18 Dec. '18.
- SAXE, MYER (XV) Appr. Sea., S. N. T. C., M. I. T.
- SCARLETT, J. A. (X) Appr. Sea., S. N. T. C., M. I. T.
- SCHEIN, SUMNER (I) Appr. Sea., S. N. T. C., M. I. T.
- SCHNITZLER, GEORGE (II, VI) Appr. Sea., S. N. T. C., M. I. T., 1 Oct.—17 Dec. '18.
- SCHOCK, E. I. (XIII) Appr. Sea., S. N. T. C., M. I. T.
- SCOTT, E. J., JR. (I) Corp., S. A. T. C., Sept. '18.
- SCOTT, PALMER (XIII) Appr. Sea., S. N. T. C., M. I. T., 14 Oct.—22 Dec. '18.
- SEARS, F. W. (XIII) Sea. 2 cl., U. S. N. R. F., Apr. '18. Active Service, 9 Oct. '18—8 Jan. '19.

REGISTER OF MILITARY RECORDS

- SEAUER, H. D. (IV) 2d Lt., F. A. Pvt., F. A., 14 May '18; 2d Lt., 31 Aug. '18. Camps Custer, Taylor and Jackson and Ft. Sill, Okla.
- SEDDON, JOHN (VI) Pvt., S. A. T. C., 15 Oct.—18 Dec. '18.
- SEITZ, WILFORD (X) Pvt., S. A. T. C., M. I. T.
- SHAUGHNESSY, A. J. (XV) Appr. Sea., S. N. T. C., M. I. T., 1 Oct. '18.
- SHAW, J. E. (III) Pvt., Marine Corps, Barracks Detachment, Navy Yard, Philadelphia, Pa., '18.
- SHAW, R. M., JR. (VI) 2d Lt., F. A. F. A. Cent. Off. Tr. Sch., Camp Taylor, Ky., 18 May—14 Dec. '18.
- SHEA, E. D. (VI) Appr. Sea., S. N. T. C., M. I. T.
- SHELDON, M. F. (XV) 2d Lt., A. S. A. Pvt. 1 cl., A. S., '18; 2d Lt., A. S. A., '19. Cornell University, N. Y.; Barron Field, Fort Worth, Texas; Post Field, Ft. Sill, Okla., until 23 May '19.
- SHEPARD, J. W. (XV) 2d Lt., Inf. Pvt., S. A. T. C., 22 July '18; 2d Lt., Inf., 16 Sept. '18. S. A. T. C., Plattsburgh, N. Y., 22 July '18; S. A. T. C., College of City of New York, 16 Sept.—20 Dec. '18.
- SHERBROOK, W. A. (II) C. Q. M. (A.), U. S. N. R. F. Naval Aviation Detachment, M. I. T., 25 Aug. '18. See Civilian Record.
- SHERMAN, J. M. (X) Pvt., S. A. T. C., 1 Oct. '18.
- SHIREY, H. M. (VI) Pvt., C. A. C. Co. H, C. A. Off. Tr. Camp, 1 Oct.—28 Nov. '18.
- SHOEMAKER, G. E., JR. (VI) 2d Lt., Aviation Sect., Sig. C. Pvt., Aviation Sect., Sig. C., 15 May '17; Corp.; Sgt.; Sgt. 1 cl.; Mr. Sig. Elec.; 2d Lt. 45th Aero Sq., Chandler Field, 15 May '17; Gerstner Field, Nov.; Air Service Sch. for Radio Mechanics, July '18; Air Service Sch. for Radio Officers, Oct. '18—Feb. '19.
- SIEGFRIED, R. R. (XIII) Pvt., C. A. C. 14th Co., Ft. Heath, Winthrop, Mass.
- SILVER, A. L. (XV) Post Sgt., S. A. T. C., M. I. T., 31 Aug. '18.
- SILVERMAN, L. M. (X) Pvt., S. A. T. C., M. I. T.
- SKARDON, K. B. (I) 1st Lt., F. A. 2d Lt., F. A., N. A., 16 May '17; 1st Lt., 31 Dec. '17. 324th F. A., May '17. A. E. F., 12 June '18—22 May '19. Meuse-Argonne Offensive.
- SKINNER, R. H. (X) 2d Lt., F. A. Pvt., S. A. T. C., 18 July '18; 2d Lt., F. A., 16 Sept. '18. S. A. T. C., Plattsburgh, N. Y., 18 July '18; Camp Taylor, Ky., 26 Sept.—28 Dec. '18.
- SMITH, J. B. (VI) Pvt., S. A. T. C., M. I. T.
- SMITH, R. W. (XII) Pvt., S. A. T. C., M. I. T., 1 Oct.—17 Dec. '18.
- SMITHWICK, R. H. (III) Pvt., S. A. T. C., M. I. T.
- SNOW, R. A. (II) Appr. Sea., S. N. T. C., M. I. T., 2 Oct. '18.
- SPARROW, E. G. (VI) reported Pvt., Marine Corps, A. E. F., '18.
- SPEARS, J. McK. (II) Ensign (E.), U. S. N. R. F. Mach. 2 cl., U. S. N. R. F., 20 May '17; Ensign, (E.) 10 July '18. Cruiser and Transport Service, 20 May '17; engagement with submarine, Aug. '18. Released, 8 June '19.
- SPENGLER, H. H. (VI) Pvt., S. A. T. C., M. I. T.
- SPITZ, R. J. (X) Appr. Sea., S. N. T. C., M. I. T.
- SPITZ, T. P. (I) Appr. Sea., S. N. T. C., M. I. T.
- SPOONER, W. K. (IV) Pvt., Engrs. Co. A, 29th Engrs., Oct. '17. A. E. F., 28 Oct. '17—2 July '19; Top. Div., Intelligence Sect., G. H. Q.; A. E. F., American Peace Comm., Jan. '19.
- STARCK, C. W. (II) Pvt., S. A. T. C., M. I. T.
- STARKEWEATHER, J. B. (I) Pvt., S. A. T. C., M. I. T.
- STEELE, B. M. (VI) Pvt., S. A. T. C., M. I. T.
- STEFFIAN, E. T. (XV) Pvt., C. A. C., Sept. '18. 9th Co., C. A. C., Ft. Warren, Mass., Sept. '18; Ft. Heath, until 24 Dec. '18.
- STEIDLITZ, D. L. (II) Pvt., S. A. T. C., M. I. T.
- STIFF, C. K. (I) Pvt., S. A. T. C., M. I. T.
- STILLMAN, H. C. (X) Pvt., S. A. T. C., M. I. T.
- STONE, C. L. (III) Appr. Sea., S. N. T. C., M. I. T., 14 Oct.—20 Dec. '18.
- STOSE, H. F. (XIV) Pvt., S. A. T. C., M. I. T., 10 Oct.—18 Dec. '18.
- SUTHERLAND, K. R. (II) Appr. Sea., S. N. T. C., M. I. T. See Civilian Record.
- SWANSON, H. R. (X) Pvt., S. A. T. C., Hobart College, Geneva, N. Y., 1 Oct.—5 Dec. '18.
- SWIFT, D. J. (X) Pvt., S. A. T. C., M. I. T., 1 Oct.—10 Dec. '18.
- SYLVESTER, W. B. (VI) Appr. Sea., S. N. T. C., M. I. T.
- TAINTOR, H. C. (II) Appr. Sea., 6th Co., S. N. T. C., 1 Oct. '18.
- TASSLER, A. H. (IX) Pvt., S. A. T. C., M. I. T.
- TAYLOR, C. W. (II) Appr. Sea., S. N. T. C., M. I. T.
- TAYLOR, E. E. (II) Sgt., Q. M. C. Pvt., Ord. Corps, N. A., 12 Dec. '17; Corp., Jan. '18; transferred to Q. M. C., Aug. '18; Sgt., Q. M. C., Feb. '19.
- TEWKSBURY, R. B. (VII) Pvt., S. A. T. C., M. I. T.

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- THOMSON, GEORGE (X) Pvt., S. A. T. C., M. I. T.
- THURBER, L. T. (XV) Capt., A. S. A. Capt., Aviation Sect., Sig. C., Dec. '17; 2d Regt. A. S. Mechanics, Dec. '17. A. E. F., 12 Mch. '18—9 June '19.
- THURSTON, R. R. (X) Pvt., 1 cl. (Flying Cadet), A. S. Camp Dick, Texas, Jan. '18; Ground School, M. I. T. and Cornell University; Observers Sch., Ft. Monroe, Va.
- TJORNTON, C. E. (VI) Pvt. S. A. T. C., M. I. T.
- TOBIN, F. L. (II) Pvt., S. A. T. C., M. I. T.
- TOWNEND, M. G. (XV) Pvt., S. A. T. C., M. I. T.
- TRAVIS, S. E., JR. (VI) Pvt., S. A. T. C., M. I. T.
- TROWBRIDGE, L. W. (X) Corp., S. A. T. C. Co. C, S. A. T. C., Plattsburg, N. Y., 23 July—16 Sept. '18. Co. E, S. A. T. C., M. I. T., 10 Oct. '18.
- TROWBRIDGE, O. H. (VI) Elec. 2 cl. (R.), U. S. N. R. F., 6 Apr. '17. Navy Electrical School for Radio Operators, New York, 4 May '17; Equipment Office, Newport, R. I., 1 June; Machinist, Submarine Patrol 45; Woods Hole, Mass., 29 July. Released to return to M. I. T., 20 Sept. '17. Unable to re-enlist on account of sickness, '18.
- TUCKER, E. R. (VI) Pvt., S. A. T. C., M. I. T.
- TUCKER, H. A. (VI) Pvt., S. A. T. C., M. I. T.
- TURKEL, SIDNEY (V) S. A. T. C., M. I. T.
- TURNER, A. A. (I) Pvt., S. A. T. C., M. I. T., 10 Oct. '18.
- TUTHILL, H. B. (XV) C. Q. M. (A.), U. S. N. R. F. Entered Service, 12 Aug. '18; Great Lakes Training School, Ill.
- TUTTLE H. B. (II) Pvt., S. A. T. C., 1 Oct. '18.
- UNDERHILL, ELIOT (X) Pvt., Inf. Rejected in U. S. N. R. F. for weight, 19 May '18; S. A. T. C., Plattsburg, N. Y., 22 July '18; Disch., 17 Sept., with recommendations for inst.; S. A. T. C., M. I. T., 1-12 Oct.; applied for Off. Tr. Camp, Camp Taylor, Ky., notified to await call, 12 Oct.; drafted, at South Station en route to Camp Lee, 11 Nov. '18. Disch., 22 Feb. '19.
- VADNER, L. S. (XV) 2d Lt., F. A., '18.
- VAUGHAN, LEONCE, JR. (X) Pvt., S. A. T. C., M. I. T.
- VAUPEL, J. L. (I) Corp., Arty., S. A. T. C., 15 Oct. '18.
- VEPSALA, ALFRED (I) Pvt., S. A. T. C., Oct.—Dec. '18.
- VOGEL, F. C. (X) Sea. 2 cl., U. S. N. R. F. Pvt., S. A. T. C., Plattsburg, N. Y., July '18; Sea. 2 cl., S. N. T. C. Oct. '18—Jan. '19.
- WAKEMAN, A. G. (II) Pvt., 1 cl. Inf. Sept. '18. Cent. Off. Tr. Sch., Camp Grant, Ill., Sept. '18.
- WALD, WILLIAM, (I) Pvt., S. A. T. C., M. I. T.
- WALLACE, R. H. (XIII) Appr. Sea., S. N. T. C., M. I. T., 1 Oct. '18.
- WASON, A. B. (XV) 2d Lt., Inf., U. S. R. Pvt., Inf., 29 July '18; 2d Lt., 16 Sept. '18. S. A. T. C., Plattsburg, N. Y., July '18; Inst., Q. M., Disbursing, 4th Liberty Loan, Inventory and Asst. Property Supply Officer, Albright College, Myerstown, Pa., Sept. '18—18 Mch. '19.
- WASON, ELBRIDGE (I) Pvt., S. A. T. C., M. I. T.
- WATERMAN, R. E. (X) Pvt., S. A. T. C., M. I. T., Oct. '18.
- WATERMAN, W. G., JR. (VI) Pvt., C. A. C., Fort Monroe, Va., '18.
- WATOV, A. E. (XV) Pvt., S. A. T. C., M. I. T.
- WEHE, R. A. (XV) Ensign, U. S. N. R. F. Sea. 2 cl., U. S. N. R. F., 15th Apr. '18; C. M. 2 cl.; C. M.; Warrant Machinist; Ensign. A. E. F., U. S. S. Moccasin; U. S. Destroyer Landsdale; U. S. S. Merauke.
- WEISMAN, MYER (I) Pvt., S. A. T. C., M. I. T.
- WENICK, JOSEPH (X) Pvt., C. W. S., S. A. T. C., 7 Oct.—Dec. '18.
- WENTWORTH, C. S. (II) Pvt., S. A. T. C., M. I. T.
- WEST, T. H. (II) Pvt., S. A. T. C., M. I. T.
- WETHERBEE, G. B. (II) Appr. Sea., S. N. T. C., M. I. T.
- WEXLER, H. A. (I) Pvt., S. A. T. C., Co. E, S. A. T. C., 1 Oct. '19.
- WHEATLAND, D. P. (II) Appr. Sea., S. N. T. C., M. I. T.
- WHELAN, F. H. E. (I) Appr. Sea., S. N. T. C., M. I. T.
- WHELPLEY, F. E. (X) Pvt., S. A. T. C., M. I. T.
- WHELTON, F. R. 2d Lt., Inf. Pvt., Inf., '17; Corp.; Sgt.; 2d Lt., July '18. Off. Tr. Camp, Camp Upton, N. Y. Jan. '18; Co. F, 305th Inf., 28th Div., July '18. A. E. F., '18—'19; 111th Inf., 28th Div. Croix de Guerre with Bronze Star. (Page 151.)
- WHIPPLE, J. VAN H. (II) Sgt., Sig. C. 29th Service Co., Army Radio Laboratories, Camp Vail, N. J., June '18—Jan. '19. See Civilian Record. (Page 278.)
- WHITE, H. E. (I) Pvt., S. A. T. C., M. I. T.

REGISTER OF MILITARY RECORDS

- WHITEHOUSE, IRVING (XII) 2d Lt., F. A. Pvt., F. A., Feb. '17; 2d Lt. F. A. Repl. Depot, Camp Jackson, S. C.; F. A. Cent. Off. Tr. Sch., Camp Taylor, Ky.
- WHITEHOUSE, R. R. (XIV) Pvt., S. A. T. C., 10 Oct. '18.
- WHITWORTH, F. T., (X) Pvt., S. A. T. C., M. I. T.
- WIEGAND, F. W. (III) Pvt., S. A. T. C., M. I. T.
- WILLARD, L. L. (II) Appr. Sea., S. N. T. C., M. I. T., 10 Oct.—17 Dec. '18.
- WILLIAMS, B. F. (II) Pvt., S. A. T. C., 30 Sept. '18. M. I. T., 11 Oct.—17 Dec. '18.
- WILLIAMS, B. P. (XV) Elec. 2 cl., U. S. N. R. F., 2 Jan. '18. Lds., U. S. N. R. F., 2 Jan. '18; Elec. 2 cl., (R), Nov. '18. In training, Jan.—Nov. '18; U.S.S. Hickman, Nov.; U.S.S. Freedom, Mch.—9 June '19.
- WILLIAMS, C. A. (VI) Lt. (j. g.), U. S. N. Ensign, U. S. N. R. F., 13 July '17; Lt. (j. g.), U. S. N., 23 Sept. '18. U.S.S. New Hampshire and U.S.S. Texas with Atlantic Fleet, Nov. '17. On convoy service Sept.—Dec. '18.
- WILLIAMS, O. E., JR. (XIII) Appr. Sea., S. N. T. C., M. I. T.
- WILLIAMS, T. S. (XV) Appr. Sea., S. N. T. C., M. I. T.
- WILSON, E. G. (III) Appr. Sea., S. N. T. C., M. I. T.
- WILSON, E. J. (II) Pvt., S. A. T. C., M. I. T.
- WINDHAM, E. A. (I) Appr. Sea., S. N. T. C., M. I. T.
- WINDISCH, R. P. (XV) Appr. Sea., S. N. T. C., M. I. T.
- WINN, J. J., JR. (X) Sgt. 1 cl., Med C., Regular Army. Dept. Surgeon's Office, Southeastern Dept., Charleston, S. C., Mch. '19.
- WINSOR, C. E. (XI) Radio Operator, U. S. N. R. F. In U. S., from 7 Dec. '17; in Adriatic, Aug. '18—June '19. See Civilian Record.
- WISHNEW, ALEXANDER (X) Appr. Sea., S. N. T. C., M. I. T.
- WOOD, A. R. (VI) Appr. Sea., S. N. T. C., M. I. T.
- WORENCROFT, R. R. (I) Pvt., S. A. T. C., M. I. T.
- WYLDE, E. P. (X) Appr. Sea., S. N. T. C., M. I. T., 1 Oct.—17 Dec. '18.
- YOUNG, A. M. (V) Pvt., S. A. T. C., M. I. T., 8 Oct.—19 Dec. '18. See Civilian Record.
- YOUNG, E. L. (XIII) Sea. 2 cl., U. S. N. R. F. Entered Service, 15 May '17; Brooklyn, N. Y., Pelham Bay, N. Y., 16 Aug.—27 Sept. '17; S. N. T. C., M. I. T., 10 Oct.—17 Dec. '18.
- YOUNG, W. H., JR. (II) Pvt., S. A. T. C., M. I. T.
- ZAGER, H. L. A. (X) Pvt., S. A. T. C., M. I. T.
- ZOLLER, M. M., (XV) Appr. Sea., S. N. T. C., M. I. T., 10 Oct. '18.

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- AARON, H. R. (II) Pvt., Inf., S. A. T. C., College of Hawaii, Honolulu, 1 Oct.—21 Dec. '18.
- ABBOTT, S. B. (I) Pvt., S. A. T. C., M. I. T., 17 Oct. '18.
- ACKER, L. F. (X) Sgt., Inf. Entered Service, 25 May '15; M. G. Co., 16th Inf., 1 Aug. '16; Camp Hancock, Ga., July '17. A. E. F., England and France, '17—Apr. '19; M. G. Co., 112th Inf., 28th Div. Champagne-Marne Defensive (Château-Thierry); Aisne-Marne Offensive; Meuse-Argonne Offensive (Metz-Sedan). Wounded in right hand and burned by mustard gas, Fismes, 5 Aug. '18. Distinguished Service Cross, for gallantry at the capture of Fismes, 6 Aug. '18. Sgt. Acker, while in charge of an isolated platoon of a Machine Gun Co., though wounded and temporarily blinded by constant exposure to gas continued to direct his men throughout the engagement. Sgt. Acker was informed of the award after the chapter dealing with citations and decorations was already in the press. The award has not yet been officially announced.
- ADAMS, HAROLD (VI) Pvt., S. A. T. C., M. I. T.
- ADAMS, PAUL (II) Corp., Engrs. Pvt., Engrs., 6 Dec. '17; Corp., '18. Truck Co. 6, 23d Engrs., 6 Dec. '17. A. E. F., 1 Apr. '18—9 July '19; Meuse-Argonne Offensive, 26 Sept.—11 Nov. '18. Gassed, Peronne, 10 July '18.
- AKERLY, E. L. (II) Pvt., S. A. T. C., M. I. T.
- ALBERT, B. G. (VI) Pvt., S. A. T. C., M. I. T.
- ALDEN, P. M. (VI) Pvt., S. A. T. C., M. I. T.
- ALDER, T. W. (XV) Pvt., S. A. T. C., M. I. T.
- ALLAND, A. B. (X) Pvt., S. A. T. C., 30 Sept. '18.
- ALLEE, H. D. (II) Appr. Sea., S. N. T. C., M. I. T.
- ALLEN, N. T. (XV) Appr. Sea., S. N. T. C., M. I. T.
- AMBLER, H. B. (II) Appr. Sea., S. N. T. C., M. I. T.
- ANDEM, K. S. (VI) Pvt., S. A. T. C., M. I. T.
- ANDERSON, A. C. (IV) Pvt., S. A. T. C., M. I. T.
- ANDERSON, P. N. (IX) Pvt., S. A. T. C., M. I. T.

TECHNOLOGY'S WAR RECORD

- ANDERSON, W. A. 1st Lt., A. S. A. 2d Lt., A. S. 1st Lt., A. S. A., 9 Oct. '18. Training Sect., 6 Dec. '17. Disch., 7 May '19.
- ANGIER, O. C. (XV) Appr. Sea., S. N. T. C.
- APOLLINIO, N. L. (II) Pvt., S. A. T. C., M. I. T.
- APPEL, P. D. (VI) Corp., S. A. T. C. Co. B, M. I. T., 30 Sept. '18.
- ATWOOD, W. F. (II) Pvt., S. A. T. C., M. I. T.
- AVERELL, E. S. (I) Pvt., S. A. T. C., M. I. T.
- BACHMANN, E. J. (VI) Pvt., S. A. T. C., M. I. T.
- BAILEY, G. T. (X) Pvt., S. A. T. C., M. I. T.
- BAILEY, W. S. (II) Sgt., Inf. Pvt., Inf., 20 Sept.; Corp., 22 Nov.; Sgt., 21 June '18. Co. E, 301st Inf., Camp Devens, Mass., 20 Sept. '17. A. E. F., England, France and Germany, 5 July '18—31 July '19; Hq. Detachment, 1st Depot Div., 19 Aug. '18; 163d Inf., 1 Oct.; Co. B, 116th Supply Tn., 31 Dec.; attached Postal Express Service, 3 Feb. '19; drove a car in the Courier Mail Service, Feb.—July '19.
- BAINBRIDGE, W. W., JR. (XV) Pvt., S. A. T. C., M. I. T.
- BAKER, C. H. (XV) Appr. Sea., Naval Unit, University of Maine, 4 Oct. '18.
- BAKER, E. H. (II) 2d Lt., F. A. Pvt., Engr. E. R. C., 25 July '18; 2d Lt., F. A., 16 Sept. '18. S. A. T. C. Plattsburg, N. Y., 31 July '18; 38th Tr. Btry, F. A. Cent. Off. Tr. Sch., Camp Taylor, Ky., 16 Sept.—28 Dec. '18.
- BAKER, J. S. (X) 2d Lt., C. A. C. Pvt., Inf., 1 Jan. '16; transferred to Engrs., May '17; transferred to C. A. C., Sept.; 2d Lt., C. A. C., 27 Nov. '17. Co. D, Minn. Inf., 1 Jan. '16; Co. D, 2d Engrs., 12 May '17; 2d Off. Tr. Camp, 26 Aug.; 63d Arty., C. A. C., 27 Nov. '17; assigned Air Service for training and duty, June '18. A.E.F., 4 Oct., '18—17 Aug. '19; Arty. Aerial Observer, 85th Aero Sqdn., Toul, Nov. '18; Postal Express Service, Mch. '19.
- BALL, C. G. (VX) Pvt., S. A. T. C., M. I. T., 10 Oct.—10 Dec. '18.
- BARDES, O. L. (XV) Appr. Sea., U. S. N. R. F. S. N. T. C., M. I. T.
- BARNARD, A. M. (I) Appr. Sea., S. N. T. C., M. I. T.
- BARNARD, T. H. (VI) Pvt., S. A. T. C., M. I. T., 10 Oct.—12 Dec. '18.
- BARROWS, J. W. (II) Pvt., S. A. T. C., M. I. T.
- BARSTOW, L. E. (II) Pvt., S. A. T. C., M. I. T.
- BASHIAN, ARAM (V) Pvt., S. A. T. C., M. I. T.
- BATES, W. J. (II) Pvt., S. A. T. C., M. I. T.
- BAUMER, F. S. (X) Pvt., S. A. T. C., M. I. T.
- BEASLEY, J. O. (III) Pvt., S. A. T. C., M. I. T.
- BEATTIE, HAMILTON (I) Appr. Sea., S. N. T. C., M. I. T.
- BELL, E. T. 2d, (VI) Pvt., S. A. T. C., M. I. T.
- BENEDICT, P. C. (XII) Pvt., S. A. T. C., 1 Oct. '18.
- BENSON, C. A. (X) 2d Lt., C. A. C. Pvt., Maine C. A., N. G., 5 May '17; Sgt., 7 May; 2d Lt., C. A. C., 27 Mch. '18. A. E. F., 72d Arty., C. A. C.
- BERNARD, KENNETH (XIII) Appr. Sea., S. N. T. C., M. I. T.
- BERRY, H. O. (X) Pvt., S. A. T. C., M. I. T.
- BEST, H. W. (IX) Ensign, U. S. N. R. F. (A), Cadet, U. S. N. R. F., 23 Dec. '17; Ensign, '18. Cambridge, Mass., 23 Dec. '17; Bayshore, N. Y.; Pensacola, Fla.; North Sydney, Nova Scotia; Miami, Fla.
- BIGANESS, L. K. (VI) Appr. Sea., S. N. T. C., M. I. T., Oct. '18.
- BIGELOW, E. E. (I) Pvt., S. A. T. C., M. I. T., 12 Oct. '18.
- BIGELOW, H. L., JR. (I) Pvt., S. A. T. C., M. I. T.
- BIRNEE, J. J. (X) Pvt., S. A. T. C., M. I. T.
- BISHOP, R. C. (VI) Appr. Sea., S. N. T. C., M. I. T.
- BLACK, C. A. (XV) Pvt., S. A. T. C., M. I. T.
- BLAKE, W. G. (II) Pvt., S. A. T. C., M. I. T.
- BOVEY, W. H., JR. (XV) Q. M. 3 cl., U. S. N. R. F. (4). Entered Service, 24 Mch. '17; active service, 17 May—8 Sept. '17, and 10 July—10 Sept. '18. Submarine Patrol, 427, Mch. '17; U.S.S. Seneca, May; Transport Service, May—Sept. '17 and July—Sept. '18.
- BLAKER, J. A. (II) Pvt., S. A. T. C., M. I. T.
- BLANCHARD, FORD (XIII) Pvt., S. A. T. C., M. I. T.
- BLANCHARD, K. C. (V) Appr. Sea., S. N. T. C., M. I. T.
- BLOOM, M. C. (X) Pvt., S. A. T. C., M. I. T.
- BODEN, J. H. (X) Pvt., S. A. T. C., M. I. T.
- BOGHOSIAN, ARDVAST (II) Pvt., S. A. T. C., M. I. T.
- BOLAM, L. G. (I) Pvt., S. A. T. C., M. I. T., Oct. '18.

REGISTER OF MILITARY RECORDS

- BOLI, G. T. (XV) Appr. Sea., S. N. T. C., M. I. T.
- BORLAND, J. P. (VI) Pvt., Co. D, S. A. T. C., M. I. T., 10 Oct.—9 Dec. '18.
- BOUFFARD, A. W. (V) Pvt., S. A. T. C., M. I. T.
- BOWDITCH, E. F. (II) Appr. Sea., S. N. T. C., M. I. T.
- BOWERS, J. A. (XIII) Appr. Sea., S. N. T. C., M. I. T., 15 Oct. '18.
- BOWLES, R. L. (I) Pvt., C. A. C., 31 Oct. '18.
- BOYD, S. W. (II) Pvt., S. A. T. C., M. I. T.
- BOYDEN, B. T. (XIII) Appr. Sea., S. N. T. C., M. I. T.
- BOYLE, J. G. (IV) Pvt., S. A. T. C., M. I. T.
- BRACKETT, J. E. (XV) Pvt., S. A. T. C., M. I. T.
- BRAGG, C. R. (III) Pvt., S. A. T. C., M. I. T.
- BRAMBACH, A. N. (XV) Appr. Sea., S. N. T. C., M. I. T.
- BRAY, C. C., Pvt., Engrs. Entered Service, 11 Feb. '18. A. E. F., 10 May '18—July '19, with 42d Engrs.
- BRAY, P. A. (XV) Pvt., S. A. T. C., M. I. T.
- BRETTING, H. L. (II) Pvt., S. A. T. C., M. I. T.
- BREWER, F. H. (II) Pvt., S. A. T. C., M. I. T.
- BRIGGS, F. B. (XIV) Cadet, U. S. N. R. F. (A.), 20 July '18. Student Flight Off. Ground Sch., Great Lakes, Ill., 22 July—8 Dec. '18.
- BRITAIN, J. F. (I) Pvt., Co. C., S. A. T. C., M. I. T., 2 Oct.—10 Dec. '18. See Civilian Record.
- BROKAW, C. E. (II) Appr. Sea., S. N. T. C., M. I. T.
- BROLIN, W. A., JR. (II) Pvt., S. A. T. C., M. I. T., 10 Oct. '18.
- BROOKFIELD, G. P. (IV) 1st Lt., Royal Canadian Arty. Canadian Off. Tr. Camp, Nov. '14; commissioned, 17 Apr. '15; Royal Canadian Garrison Arty., 6 June '16; placed on Officer's Reserve, 20 Dec. '19.
- BROUDY, D. M. (VI), Appr. Sea., S. N. T. C., M. I. T.
- BROUWER, R. D. (II) Pvt., S. A. T. C., M. I. T.
- BROWN, C. H. (II) Sgt., Co. E., S. A. T. C., M. I. T., 10 Oct.—21 Dec. '18.
- BROWN, EDWIN C. (XV) Appr. Sea., S. N. T. C., M. I. T.
- BROWN, EVERETT C. (VI) Pvt., S. A. T. C., M. I. T.
- BROWN, E. L. (II) Pvt., S. A. T. C., M. I. T.
- BROWN, E. S. (II) Appr. Sea., U. S. N. R. F. S. N. T. C., M. I. T.
- BROWN, H. E. (X) Pvt., S. A. T. C., M. I. T.
- BROWN, L. N. (VI) Corp., S. A. T. C., M. I. T., 10 Oct. '18.
- BROWN, P. B. (IV) Appr. Sea., S. N. T. C., M. I. T.
- BROWN, R. D. (V) Acting Sgt., S. A. T. C. Plattsburg Off. Tr. Camp, 3 June '18; S. A. T. C., Plattsburg, N. Y., 5 July '18; discharged, 17 Sept.; S. A. T. C., M. I. T., 1 Oct. Recommendation for Cent. Off. Tr. Camp, Camp Taylor, Ky., Nov., cancelled by armistice.
- BROWN, WILLIAM (II) Pvt., S. A. T. C., M. I. T.
- BUCK, H. H. (IV) 2d Lt., F. A. Pvt., Inf., 3 June '18; 2d Lt., 16 Sept. '19; transferred to F. A. Off. Tr. Camp, 3 June '18; Bn. Adj., 82d F. A. Engagement in and around Juarez, Mexico, 15-16 June '19.
- BUCKLEY, W. E. (I) Pvt., S. A. T. C., M. I. T.
- BUDNITZ, M. B. (I) Pvt., S. A. T. C., M. I. T.
- BUNDY, H. E. (XV) Pvt., S. A. T. C., M. I. T., 10 Oct. '18.
- BUNTING, F. T. (I) Pvt., S. A. T. C., M. I. T.
- BURBANK, H. A. (VI) 2d Lt., Royal Flying C. (British). Cadet, R. F. C., Apr. '18; 2d Lt., Nov. '18. Recruits' Depot, Toronto, Apr. '18; Cadet Wing, Long Branch, Ontario, May; Arty. Observation, No. 4 School of Aeronautics, Toronto University, July; arty. correction, photography, 43d Wing, 91st Sq., Leaside, Ont., Aug.; Aerial Fighting Sq. No. 4, Oct. '18.
- BURNHAM, H. E. (XV) Pvt., S. A. T. C., M. I. T.
- BURKETT, K. M. (I) Appr. Sea., S. N. T. C., M. I. T.
- BURRUS, R. C. (II, VI) 2d Lt., Inf., 19 July '18—18 Oct. '19.
- BUTTNER, G. H., JR. (III) Pvt., S. A. T. C., M. I. T.
- CALDOR, L. J. (XIII) Appr. Sea., S. N. T. C., M. I. T., 1 Oct. '18.
- CAPLAIN, PHILIP (V) Pvt., S. A. T. C., M. I. T., Oct. '18.
- CARLETON, R. D. (I) Pvt., S. A. T. C., M. I. T.
- CARROLL, E. J. (X) Pvt., S. A. T. C., M. I. T.
- CARVER, R. D. (II) Pvt., Co. D, S. A. T. C., University of Chicago, 6 Oct. '18.
- CAULDWELL, W. A. (I) Pvt., S. A. T. C., M. I. T.

TECHNOLOGY'S WAR RECORD

- CHACE, JONATHAN (VI) Pvt., S. A. T. C., M. I. T.
 CHADBOURNE, J. H., JR. (V) Pvt., S. A. T. C., M. I. T.
 CHALFIN, S. F. (II) Pvt., S. A. T. C., M. I. T.
 CHAPMAN, R. W. (XV) 2d Lt., F. A. 37th F. A., 13th Div., 22 Aug. '17—6 Jan. '19.
 CHASE, C. A. (XIII) Ensign, U. S. N. R. F. Q. M. 2cl., U. S. N. R. F. (4), 5 Apr. '17; Ensign, 28 Sept. '17.
 Submarine Patrol 733, Newport, May '17; Aide to C. O., 2d Naval District Mine Force, Nov.; Ex. Officer,
 Submarine Patrols 980, 838 and 839, 14 Nov. '18—22 Mch. '19.
 CHASE, D. H. (IV) Pvt., S. A. T. C., M. I. T., 10 Oct.—10 Dec. '18.
 CHASE, H. D. (I) Pvt., Co. C, S. A. T. C., M. I. T., 11 Oct.—15 Dec. '18.
 CHASE, R. B. (IX) Pvt., S. A. T. C., M. I. T.
 CHATFIELD, R. S. (IV) Pvt., S. A. T. C., M. I. T.
 CHENEY, D. S. (I) Pvt., S. A. T. C., M. I. T.
 CHEVES, L. McC. (I) Ensign, (Pilot), U. S. N. R. F. (A.). Seattle, Wash., 31 July '18; San Diego, Calif.; Pensacola, Fla.
 CHICK, W. G. (II) Appr. Sea., S. N. T. C., M. I. T.
 CHRISTOPH, JOSEPH (X) Appr. Sea., S. N. T. C., M. I. T.
 CHOQUETTE, P. J. (X) Pvt., S. A. T. C., M. I. T.
 CHURCH, J. W. (X) Pvt., C. A. C. 14th Co., Boston, 21 Oct. '18; 7th Co. Fort Warren; R. O. T. C. Sch., Fort
 Heath, Mass., Disch., 13 Dec. '18. See Civilian Record.
 CLAPP, ROGER (I) Appr. Sea., S. N. T. C., M. I. T.
 CLAPP, R. D. (VII) Pvt., S. A. T. C., M. I. T.
 CLARK, E. C. (VI) Pvt., S. A. T. C., M. I. T., 11 Oct. '18.
 CLARKE, W. E., JR. (XIII) Appr. Sea., S. N. T. C., M. I. T.
 CLEMENS, H. S. (II) Appr. Sea., S. N. T. C., M. I. T.
 CLENDENIN, E. H. (VI) Pvt., Co. C, S. A. T. C., M. I. T., 10 Oct.—18 Dec. '18.
 CLIFF, S. E. (X) Appr. Sea., S. N. T. C., M. I. T.
 COCKS, V. V. (III) Appr. Sea., S. N. T. C., M. I. T.
 CODDING, L. W. (VI) Pvt., S. A. T. C., M. I. T.
 COHEN, NATHAN (II) Appr. Sea., S. N. T. C.
 COHEN, R. L. (VI) Pvt., S. A. T. C., M. I. T.
 COHEN, SIGMUND (I) Pvt., S. A. T. C., M. I. T.
 COLEMAN, C. B. (XV) Pvt., Marine C.
 COLLERAN, J. J. (I) Appr. Sea., S. N. T. C., M. I. T.
 COMEY, C. S. (II) Appr. Sea., S. N. T. C., M. I. T., Oct. '18.
 COMPTON, J. H. (I) Appr. Sea., S. N. T. C., M. I. T., 11 Oct. '18.
 CONLEY, E. M., JR. (IV) Yeo. 1 cl., U. S. N. R. F., 5 May '17; U.S.S. Henderson, Transport; Naval Aviation
 Detachment, M. I. T., Aug. '18.
 CONNELL, L. H. (VI) Pvt., S. A. T. C., M. I. T.
 CONNOR, H. A. (X) Appr. Sea., S. N. T. C., M. I. T.
 CONNORS, F. (II) Pvt., S. A. T. C., M. I. T.
 CONNORS, P. A. (XV) Pvt., S. A. T. C., M. I. T.
 CONROD, R. L., 2d Lt., Inf., Camps Devens, Lee and Perry.
 COOGAN, E. D. (VI) Pvt., S. A. T. C., M. I. T.
 *COOK, H. M., JR. See Roll of Honor (page 124).
 COOK, J. F., JR. (VI) Pvt., S. A. T. C., M. I. T.
 COOK, R. M. (XV) Pvt., S. A. T. C., 10 Oct. '18.
 COOPER, C. M. (V) Pvt., S. A. T. C., M. I. T.
 CORBETT, L. S. (I) Appr. Sea., S. N. T. C., M. I. T.
 CORBIN, W. H. (XV) Appr. Sea., S. N. T. C., M. I. T.
 COSGROVE, J. M. (XIV) Pvt., S. A. T. C., M. I. T.
 COUPLAND, R. S. (IV) 2d Lt., C. A. C., Aug. '18. Co. N, Heavy Arty., Ft. Monroe, Va., Aug. '18—6 Feb. '19.
 CRABB, J. P. (X) Pvt., S. A. T. C., M. I. T., 10 Oct. '18.
 CRABTREE, K. G. (VI) Pvt., S. A. T. C., M. I. T.
 CRAIGNE, J. S., JR. (I) Pvt., S. A. T. C., M. I. T.
 CREAMER, L. C. (XV) Pvt., S. A. T. C., M. I. T.
 CROOKER, A. P. (XIII) Pvt., S. A. T. C., M. I. T.

REGISTER OF MILITARY RECORDS

- CROFT, W. J., JR. (II) Pvt., S. A. T. C., 14 Oct. '18.
- CROFTON, C. K. (XV) Pvt., S. A. T. C., M. I. T.
- CROSBY, P. W. (VI) Appr. Sea., S. N. T. C., M. I. T.
- CROWE, E. J. (II) Pvt., S. A. T. C., M. I. T.
- CROWELL, H. G. (I) Appr. Sea., S. N. T. C., M. I. T.
- CROWELL, H. P. (I) Pvt., C. A. C. 2d Co., C. A., Portsmouth, N. H., 22 Oct. '18; passed examination for Off. Tr. Sch., Ft. Monroe, Va., 25 Nov. '18.
- CRYAN, M. C. (X) Pvt., S. A. T. C., M. I. T.
- CULBERT, R. R., JR. (XIII) Appr. Sea., S. N. T. C., M. I. T.
- CUMMINGS, R. F. (II) Pvt. S. A. T. C., 1 Oct.—20 Dec. '18.
- CUSHMAN, G. A. (II) Sgt. 1 cl., F. A. Pvt., Ambulance Co., 7 June '17; Sgt., 1 cl., '18; transferred to F.A., 1 Aug. '18. Sect. 606, Ambulance Co., Allentown, Pa., 7 June '17; 101st Tr. Btry., F. A. Cent. Off. Tr. Sch., Camp Taylor, Ky., 1 Aug. '18. Disch., 25 Nov. '19.
- CUTLER, G. J. (II) C. Q. M. (A.), U. S. N. R. F. Sea. 1 cl., U. S. N. R. F., 15 May '17; B. M. 1 cl., 18 Jan. '18; C. Q. M. (A.), 9 Sept. '18. Key West Training Camp, Fla., 15 May '17; U.S.S. Tampa; Submarine Patrol 203; Submarine Chaser 153; Naval Aviation Detachment, M. I. T., 9 Sept. '18.
- CYCHOL, J. J. (I) Pvt., Inf., S. A. T. C., M. I. T., 10 Oct. '18.
- DADMIUN, F. B. (VI) Pvt., S. A. T. C., M. I. T.
- DAMON, R. H. (II) Bugler, S. N. T. C., M. I. T., 1 Oct.—Dec. '18.
- DANE, JOSEPH, JR. (II) Appr. Sea., S. N. T. C., M. I. T.
- DANENHOUR, G. B., Maj., Inf. Pvt., Off. Tr. Camp, 13 May '17; Capt., Inf., '17; Maj., 24 Oct. '18. A. E. F., May '18—26 Oct. '19; 358th Inf., 90th Div, Saizerais Sector; St. Mihiel Offensive; Puvencell Sector (Raid of Sept. 26); Meuse-Argonne Offensive. Divisional Citation and two recommendations for Distinguished Service Cross. (Page 156.)
- DAVIDSON, F. G. (IV) Appr. Sea., S. N. T. C., M. I. T. Entered Service, June '18.
- DAVIS, E. N. (I) Pvt., S. A. T. C., M. I. T.
- DAVOL, P. W. (V) Pvt., S. A. T. C., M. I. T.
- DEANE, G. P. (II) Pvt., S. A. T. C., M. I. T.
- DE CASTRO, EDSON (X) Pvt., S. A. T. C., M. I. T., 10 Oct. '18.
- DE LUE, G. H. (V) Appr. Sea., S. N. T. C., M. I. T.
- DENNETT, E. H. (II) Pvt., S. A. T. C., M. I. T.
- DIAMOND, HARRY (VI) Pvt., S. A. T. C., M. I. T.
- DIBBLE, W. H. (X) Elec. 1 cl., U. S. N. R. F. Appr. Sea., U. S. N. R. F., 10 Oct. '18; Elec. 1 cl., Dec. '18. S. N. T. C., 10 Oct.—Dec. '18.
- DIDISHEIM, F. M. (X) Pvt., S. A. T. C., M. I. T.
- DIEFENDORF, A. C. (II) Pvt., S. A. T. C., M. I. T.
- DIGGS, G. L. (VI) Pvt., S. A. T. C., M. I. T.
- DILLON, F. N., JR. (II) Pvt., S. A. T. C., M. I. T.
- DIMMOCK, M. S. (IV) 2d Lt., F. A. Pvt., F. A., 6 Jan. '18; Sgt.; 2d Lt., 1 June '18. Btry. C, 313th F. A., 80th Div. A. E. F., 26 May '18—24 May '19; Inst., Saumur Arty. Sch., Nov. '18; Btry. C, 110th F. A., 29th Div., 12 Feb. '19.
- DINGEE, A. L. M. (XIV) Chief Elec. (R.), U. S. N. R. F. Elec. 2 cl., (R.), U. S. N. R. F., 9 June '17; Elec. 1 cl., Mch. '18; Chief Elec., Nov. '18. Disch., Aug. '19.
- DIPPEL, C. D. (XV) Pvt., S. A. T. C., M. I. T.
- DIRKSEN, P. C., JR. (I) Appr. Sea., S. N. T. C., M. I. T.
- DODGE, M. G. (I) Pvt., S. A. T. C., M. I. T.
- DONOVAN, J. G. (II) Appr. Sea., S. N. T. C., M. I. T.
- DOUBLEDAY, J. S. (X) Platoon Sgt., S. A. T. C., Columbia University, New York City, 1 Oct. —11 Dec. '18. See Civilian Record.
- DOYLE, H. M. (II) Pvt., S. A. T. C., M. I. T.
- DRISCOLL, W. B. (XV) Pvt., S. A. T. C., M. I. T.
- DRISCOLL, W. F. (VI) Appr. Sea., S. N. T. C., M. I. T.
- DRURY, R. S. (I) Appr. Sea., S. N. T. C., M. I. T.
- DUANE, JAMES (XV) Pvt., Cav., S. A. T. C., Norwich.
- DU BOIS, C. A. (V) Pvt., S. A. T. C., M. I. T.
- DUCKWORTH, F. L. (VI) Appr. Sea., S. N. T. C., M. I. T.
- DUDLEY, SHEPARD (XV) Pvt., Marine Corps Aviation, Sect., Cambridge, Mass., 12 Oct.—16 Dec. '18.
- DUGE, H. J. (II) Appr. Sea., S. N. T. C., M. I. T., 10 Oct. '18.

TECHNOLOGY'S WAR RECORD

- DUNCAN, W. T. (X) Appr. Sea., S. N. T. C., M. I. T.
 DUNLEVY, J. L. (II) Pvt., S. A. T. C., M. I. T.
 DYER, C. P. (X) Pvt., S. A. T. C., M. I. T.
 DYER, G. H. (II) Pvt., S. A. T. C. 14 Oct.—15 Dec. '18.
 EDDY, L. B. (XV) Pvt., Marine C. 107th Co., 8th Regt., 7 July '17; 1st M. G. Repl. Bn., A. E. F., May '18—Aug. '19; 6th M. G. Bn., 81st Co. St. Mihiel Offensive; Champagne Offensive; Meuse-Argonne Offensive; Army of Occupation.
 EDWARDS, M. R. (VI) Pvt., Sig. C. Entered Active Service, with N. G., 15 July '17. A. E. F., 15 Sept. '17—Aug. '19; Co. A, 101st Field Sig. Bn., 26th Div.; Hq. Co., 102d Inf. Sig. Platoon, 20 June '18; Telephone Lineman in Inf. Sig. Platoon at the Front. Chemin des Dames Sector; Toul Sector; Aisne-Marne Offensive (Château-Thierry), July; St. Mihiel Offensive; Meuse-Argonne Offensive (Verdun). Gassed, Beaumont, Verdun Sector, 2 Nov. '18. (Page 193.)
 ELDER, L. W., JR. (V) Pvt., S. A. T. C., M. I. T.
 ELLIOTT, J. R., JR. (III) Appr. Sea., S. N. T. C., M. I. T., 16 Oct. '18.
 ELLIS, RAY C. (II) Pvt., S. A. T. C., M. I. T.
 ELLIS, ROBERT C. (III) Appr. Sea., S. N. T. C., M. I. T.
 EMERSON, L. W. (II) Pvt., S. A. T. C., M. I. T., 10 Oct. '18.
 ERIKSON, A. F. (III) Pvt., S. A. T. C., 14 Oct.—17 Dec. '18.
 ERIKSON, G. L. (VI) Appr. Sea., S. N. T. C., M. I. T.
 ESPINOSA, J. C. (X) Sgt., Engrs. Pvt., Engrs., 31 Oct. '18; Sgt., 22 Nov. Co. D, 1st Regt., Philippine National Guard (Federalized), in Philippine Islands, 31 Oct. '18—16 Jan. '19.
 ESTES, R. D. (I) Pvt., S. A. T. C., M. I. T.
 EWART, J. L. (V) Pvt., S. A. T. C., M. I. T.
 EWERTZ, R. W. (XIII) Appr. Sea., S. N. T. C., M. I. T.
 FALES, E. C. (XV) Pvt., S. A. T. C., M. I. T., 28 Sept. '18.
 FARNHAM, E. T. (III) Pvt., S. A. T. C., M. I. T.
 FARRER, J. A., JR. (XV) C. Q. M. (A.), U. S. N. R. F. Pvt., S. A. T. C., 18 July '18; C. Q. M., U. S. N. R. F., 1 Nov. '18. S. A. T. C., Plattsburg, N. Y., 18 July '18; Camp Hancock, Ga., for special instruction in machine guns, 22 Aug.; chose discharge at end of special course, and re-enlisted in Naval Aviation Detachment, M. I. T., 1 Nov. '18, Disch., 20 Nov. '18.
 FAUST, C. G., JR. (II) Pvt., S. A. T. C., M. I. T.
 FEGELY, J. C. (VI) Appr. Sea., S. N. T. C., M. I. T.
 FELDMAN, ISADORE (I) Pvt., S. A. T. C., M. I. T.
 FELL, N. H. (V) Pvt., S. A. T. C., Delaware College, 18 Sept. '18.
 FERDINAND, R. E. (XV) Pvt., S. A. T. C., M. I. T.
 FERGUSON, W. T. (IV) Appr. Sea., S. N. T. C., M. I. T., 13 Oct. '18.
 FINKEL, H. H. (X) Pvt., S. A. T. C., M. I. T.
 FIRST, M. J. (II) Appr. Sea., S. N. T. C., M. I. T.
 FISHER, L. B. (XV) Pvt., S. A. T. C., M. I. T.
 FISHER, M. L. (VI) Appr. Sea., S. N. T. C., M. I. T., 11 Oct. '18; transferred to U. S. N. R. F.; on leave at M. I. T. (Dec. '19).
 FITZGERALD, T. E. (X) Pvt., S. A. T. C., M. I. T.
 FLATHER, J. H. (II) Pvt., S. A. T. C., M. I. T.
 FLETCHER, F. A. (XIV) Pvt., S. A. T. C., M. I. T.
 FLETCHER, S. G. (VI) Pvt., S. A. T. C., M. I. T.
 FLOURNOY, A. F. (VI) Lds. Elect. (Gen.), U. S. N. R. F., Naval Training Station, 7 Mch. '18. Inactive duty, 5 Dec. '18.
 FOLLARD, R. J. (II) Appr. Sea. S. N. T. C., M. I. T.
 FORD, E. L. (XIII) Appr. Sea., S. N. T. C., M. I. T.
 FORRESTER, J. J., JR. (X) 2d Lt., C. A. R. C. Pvt., C. A. C., 5 July '18; Corp., 8 Sept.; Sgt., 2 Oct., 2d Lt., C. A. R. C., 31 Jan. '19. 8th Co., C. A. C., Boston, Mass., 5 July '18; 24th Co., Boston, 5 Oct.; C. A. Sch. Troops, Ft. Monroe, Va., 1 Nov. '18—31 Jan. '19.
 FORSTER, D. W. (II) Pvt., S. A. T. C., M. I. T.
 FOSTER, J. E. (II) Appr. Sea., S. N. T. C., M. I. T.
 FOSTER, R. D. (X) Pvt., S. A. T. C., M. I. T.
 FREIHEIT, A. J. (X) Appr. Sea., S. N. T. C., M. I. T.
 FREEDMAN, L. H. (X) Pvt., S. A. T. C., M. I. T.
 FRICK, H. W. (X) Pvt., S. A. T. C., M. I. T.
 FRIEDRICK, VALENTINE, JR. (X) Pvt., S. A. T. C., M. I. T.

REGISTER OF MILITARY RECORDS

- FROST, H. B. (XV) Pvt., S. A. T. C., M. I. T.
 FULLER, N. M. (XIII) Appr. Sea., S. N. T. C., M. I. T.
 FULTON, C. C. (XIV) Pvt., S. A. T. C., Sept. '18.
 FYNN, G. F. (X) Pvt., Inf., 26 Aug. '18. Div. A. E. F., Oct. '18—Mch. '19; 124th Inf., 31st Div.
 GAHAGAN, W. C. (XIII) Pvt., S. A. T. C., M. I. T.
 GALLAGHER, E. F. (IV) Pvt., S. A. T. C., M. I. T.
 GASKILL, H. E. (V) Appr. Sea., S. N. T. C., M. I. T.
 GASSER, BERNHARD (I) Pvt., S. A. T. C., 10 Oct. '18.
 GENTLEMAN, L. M. (I) Pvt., S. A. T. C., 10 Oct.—20 Dec. '18.
 GIBB, G. W. (II) Pvt., S. A. T. C., M. I. T.
 GILES, E. C. (VI) Appr. Sea., S. N. T. C., M. I. T.
 GILL, T. H. (I) Pvt., C. B., S. A. T. C., 10 Oct. '18.
 GIROUARD, C. L. (I) Appr. Sea., S. N. T. C., M. I. T.
 GITTER, JACOB (X) Pvt., S. A. T. C., M. I. T.
 GODBOUT, A. P. (X) Pvt., S. A. T. C., M. I. T.
 GODFREY, J. K. (XV) Pvt., S. A. T. C., Oct. '18.
 GOLDBERG, HARRY (VI) Pvt., S. A. T. C., M. I. T.
 GORDON, M. J. (I) Pvt., S. A. T. C., M. I. T.
 GOUCHER, C. L. (XI) Pvt., S. A. T. C., M. I. T.
 GOVE, K. L. (II) Pvt., S. A. T. C., M. I. T.
 GOVERMAN, I. L., Appr. Sea., S. N. T. C., M. I. T.
 GRADY, W. J. (XV) Pvt., S. A. T. C., M. I. T.
 GRAHAM, M. P. (X) Pvt., S. A. T. C., M. I. T.
 GRAY, E. F. (X) Appr. Sea., S. N. T. C., M. I. T.
 GRAY, W. C., JR. (XV) Appr. Sea., S. N. T. C., M. I. T.
 GREANEY, J. F. (II) Pvt., S. A. T. C., M. I. T.
 GREENBERG, EDWARD (V) Appr. Sea., S. N. T. C., M. I. T.
 GREENBLATT, JOSEPH (XV) Sea. 2 cl., U. S. N. R. F., 3 May '18. Section Chief, Boston, Oct. '18; transferred to S. N. T. C., M. I. T., Oct. '18. See Civilian Record.
 *GREEN, J. B. (V). See Roll of Honor (page 121).
 GREENEWALT, C. H. (X) Pvt., S. A. T. C., M. I. T.
 GREENING, C. W. (II) Pvt., S. A. T. C., Oct.—Dec. '18.
 GREENOUGH, R. F. (II) Pvt., S. A. T. C., M. I. T.
 GRIP, C. J. (X) Pvt., S. A. T. C., M. I. T.
 GRISWOLD, E. A. (V) Pvt., S. A. T. C., M. I. T.
 GUY, D. W. (X) 1st Lt., A. S. A. Pvt., American Field Service, 19 Feb. '17; Sgt., Lafayette Flying Corps; 1st Lt., A. S. A., 8 Nov. '18. France, 19 Feb. '17—6 Apr. '19; Sect. No. 15, Ambulance Service, with French Army, 19 Feb. '17; Sqs. 156 and 38, Lafayette Escadrille; 1st Aero Sq., A. S., U. S. A., 7 Nov. '18. On active fronts for thirteen months. Aisne Defensive; Champagne-Marne Defensive; Aisne-Marne Offensive and other major operations. Croix de Guerre with Palm.
 HACKETT, T. W. (II) Appr. Sea., S. N. T. C., M. I. T.
 HADLEY, H. A. (XIII) Appr. Sea., S. N. T. C., M. I. T.
 HALL, F. C. (VI) Corp., Sig. C. Pvt., Sig. C., 5 Oct. '17; Corp. A. E. F., France and Germany, 10 June '17—27 May '19; 301st Field Signal Bn. Marbache Sector; Moselle Offensive.
 HALL, SYDNOR (II) 2d Lt., F. A. F. A. Cent. Off. Tr. Sch., Camp Taylor, Ky., Sept. '18.
 HALLOCK, ROBERT (II) C. M. 1 cl. (A.), U. S. N. R. F. C. M. (A.), U. S. N. R. F., Apr. '17; C. M. 2 cl.; C. M. 1 cl. (A.) Charleston, S. C., Apr. '17; Pensacola, Fla.; Inspector of Propellers, Curtiss Aeroplane Plant, Philadelphia, Pa.; Advanced Training Sch., Off. Tr. Sch., Philadelphia.
 HALPIN, J. F., JR. (I) Appr. Sea., S. N. T. C., M. I. T.
 HAMER, G. F., JR. (III) Pvt., S. A. T. C., M. I. T.
 HAMMOND, A. M. (II) Appr. Sea., S. N. T. C., M. I. T., 5 Oct.—17 Dec. '18.
 HANSON, H. E. (II) Pvt., Off. Tr. Camp, Plattsburg, N. Y., 2 June '18; S. A. T. C., Plattsburg, N. Y., 3 July—17 Sept. '18; S. A. T. C., M. I. T., 12 Oct.—9 Dec. '18.
 HARMON, L. E., JR. (X) C. Q. M. (A.), U. S. N. R. F. Naval Aviation Detachment, M. I. T., Aug. '18.
 HARRIS, C. W. (X) Appr. Sea., S. N. T. C., M. I. T.
 HARRIS, W. W. (II) Pvt., S. A. T. C., M. I. T.
 HARRINGTON, D. W. (I) Pvt., S. A. T. C., M. I. T.

TECHNOLOGY'S WAR RECORD

- HASKELL, BRODERICK, JR. (X) Appr. Sea., S. N. T. C., 28 Sept. '18.
- HASKINS, E. B. (II) Pvt., S. A. T. C., M. I. T.
- HASTINGS, A. W. (VI) Pvt., S. A. T. C., M. I. T.
- HART, C. E. (X) Appr. Sea., S. N. T. C., M. I. T.
- HARTSHORN, S. D. (II) Appr. Sea., S. N. T. C., M. I. T.
- HATFIELD, S. J. (XIII) Pvt., S. A. T. C., M. I. T., 12 Oct.—21 Dec. '18.
- HANEISEN, B. R. (XIV) Appr. Sea., S. N. T. C., M. I. T.
- HAVLAR, M. M., JR. (VI) Pvt., S. A. T. C., 9 Oct. '18.
- HAYES, A. G. (I) Sgt., S. A. T. C. Pvt., Engrs., 14 Oct. '18; Sgt., 25 Oct. S. A. T. C., M. I. T., 14 Oct.—10 Dec. '18.
- HAYES, J. A. (II) Pvt., S. A. T. C., M. I. T.
- HEFFERMAN, J. T., JR. (XIII) Pvt., S. A. T. C., M. I. T.
- HELME, J. B. (IV) six weeks at the Hill Military Tr. Camp, under govt. supervision; ordered to Camp Jackson, Fla., for an officer's training in M. T. C. Induction cancelled after armistice.
- HEMENWAY, S. H. (II) Pvt., Inf., Co. A. S. A. T. C., M. I. T., 1 Oct.—17 Dec. '18.
- HENPHILL, J. W. (II) Sgt., S. A. T. C. Pvt., 3 Oct. '18; Act. Sgt., Nov. '18. S. A. T. C., M. I. T., 3 Oct.—20 Dec. '18. See Civilian Record.
- HENNESSY, J. F. (I) Pvt., S. A. T. C., M. I. T.
- HENRICKSSEN, S. J. (XV) Pvt., S. A. T. C., M. I. T.
- HENRY, C. C. (VI) Chief Elec. (R.), U. S. N. R. F. Lds. Elec., U. S. N. R. F., 17 July '17; Elec. 2 cl., (R.), Ft. '18; Chief Elec. (R.), May '18. Naval Radio School, Harvard University, Sept. '17; Inst., Jan.—July '18. Disch., 22 May '19.
- HERBERT, W. F. (II) Pvt., S. A. T. C., M. I. T.
- HERLIHY, W. F. (XIV) Appr. Sea., S. N. T. C., M. I. T.
- HERSHENSON, B. B. (VII) Pvt., S. A. T. C., M. I. T.
- HICKEY, H. A. (III) 2d Lt., Inf. Pvt., Inf., 18 July '18; 2d Lt., 16 Sept. '18. S. A. T. C., July '18; Mexico Agricultural College, 30 Sept. '18.
- HIGGINS, A. F. (X) Pvt., S. A. T. C., M. I. T.
- HIGGINS, F. A. (I) Sea., U. S. N. R. F., June '18. Bumkin Island, 22 June '18; passed examination for Harvard Ensign School, 14 Nov., appointment refused on account of armistice; Naval Rifle Range, Camp Plunkett, Mass., 18 Nov. '18—4 Jan. '19.
- HODGINS, E. F. (X) Pvt., S. A. T. C., Cornell University, Oct. '18.
- HOGAN, R. J. (II) Pvt., S. A. T. C., M. I. T.
- HOLDERNESS, G. S. (IV) 1st Lt., F. A. Pvt., Off. Tr. Camp, 13 May '17; 2d Lt., F. A.; 1st Lt. 1st Off. Tr. Camp, Ft. Logan, Ark., 13 May '17; 355th F. A., Camp Pike, Ark.; Camp Jackson, S. C.; School of Fire, Ft. Sill, Okla.; 37th F. A., Camp Lewis, Wash.; Presidio of San Francisco, Calif., until 13 Feb. '19.
- HOLMES, P. B. (VI) Pvt., S. A. T. C., M. I. T.
- HOMER, T. J., JR. (I) Pvt., Co. C, S. A. T. C., M. I. T., 1 Oct. '18.
- HORGAN, F. J. (VI) Pvt., S. A. T. C., M. I. T.
- HOPKINS, G. R. (I) Appr. Sea., S. N. T. C., M. I. T.
- HORLICK, W. I. (VI) Sea. 2 cl., S. N. T. C., M. I. T., 10 Oct.—17 Dec. '18.
- HORN, H. J., JR. (XV) M. M. 2 cl., U. S. N. R. F., 26 May '17.
- HOROVITZ, O. H. (I) Pvt., S. A. T. C., M. I. T.
- HORVITZ, W. G. (I) Pvt., S. A. T. C., M. I. T.
- HOUSTON, J. F. (I) Ensign, U. S. N. R. F. C. M. 2 cl., U. S. N. R. F., 27 May '17; C. M. 1 cl., Nov.; Ensign, Sept. '18. U.S.S. South Carolina, with Atlantic Fleet, July '17—Sept. '18; 5th Reserve Officers' Class, Naval Academy, Annapolis, Md., Oct. '18—Feb. '19.
- HOVGAARD, O. M. (V) Pvt., S. A. T. C., M. I. T.
- HOWARD, A. E. (I) Pvt., S. A. T. C., M. I. T.
- HOWE, E. W. (II) Pvt., Co. E, S. A. T. C., M. I. T., 11 Oct. '18.
- HOWE, W. L. (XIV) Pvt., S. A. T. C., M. I. T.
- HOWLAND, W. E. (XI) Pvt., S. A. T. C., M. I. T., 10 Oct. '18.
- HOWLAND, W. T. (II) Appr. Sea., S. N. T. C., M. I. T.
- HUFF, S. N. W. (VI) Pvt., S. A. T. C., M. I. T.
- HUGHES, R. W. (X) Sea., S. N. T. C., M. I. T., 14 Oct. '18.
- HULL, R. J. (I) Pvt., S. A. T. C., M. I. T.
- HUMES, H. L. (X) Pvt., S. A. T. C., M. I. T.

REGISTER OF MILITARY RECORDS

- JACKSON, C. T. (VI) Boatswain, U. S. N. R. F. Sea. 1 cl., U. S. N. R. F., 1 Apr. '17; Boatswain, 6 June '18. Patrol Boat Scotia, Boston Section Patrol, Apr. '17; Bumkin Island; Harvard Naval Trainees Unit, 25 Aug.; Cadet School, Cambridge, 5 Feb. '18; not eligible for a commission being under age, made Warrant Boatswain, and assigned to shore duty; Inst., Officers Material School, Cambridge; Office of Comdr., Naval Forces, First Dist.; Rockland, Me., until Dec. '18.
- JAMES, W. H. L. (VI) Pvt., S. A. T. C.
- JASON, J. F. (I) Appr. Sea., S. N. T. C., M. I. T.
- JENKINS, G. S. (III) Appr. Sea., S. N. T. C., M. I. T.
- JENKINS, V. N. (II) Pvt., S. A. T. C., M. I. T.
- JOHANSEN, E. L. (III) Lt. (j. g.), U. S. N. R. F. (A.). Sea. 2 cl., U. S. N. R. F., 9 July '17; Ensign (A.), 8 Feb. '18; Lt. (j. g.), Mch. '19. 2d Co., Naval Aviation Detachment, M. I. T., 9 July '17; Naval Air Station, Pensacola, Fla., Dec. '18. A. E. F., Italy, Mch. '18—Jan. '19; U. S. Naval Air Station, Salses Bolseno, '18; Air Raids on Pola, Austria. Italian War Cross.
- JOHNSON, A. L. (XV) Appr. Sea., S. N. T. C., 5 Oct. '18. Bn. Adj. at station. See Civilian Record.
- JOHNSON, A. V. (VI) Appr. Sea., S. N. T. C., M. I. T.
- JOHNSON, C. A. (IV) Pvt., S. A. T. C., M. I. T.
- JOHNSON, G. A. (XV) Pvt., S. A. T. C.
- JOHNSON, R. F. (X) Pvt., S. A. T. C., M. I. T.
- JOHNSON, R. S. (II) Pvt., S. A. T. C., M. I. T.
- JOHNSON, W. W., (X) Corp., Engrs. Pvt., Engrs., 30 Sept. '17; Corp., 25 Feb. '19. Co. B, 26th Engrs., 30 Sept. '17. A. E. F., 29 Oct. '17—26 July '19; Central Med. Laboratory, 8 Nov. '18; Hq. Troop, 2d Army, 15 Jan. '19. St. Mihiel Offensive.
- JONES, A. L. (I) Ensign, U. S. N. R. F. (A.). Sea., U. S. N. R. F., 31 May '17; Ensign. Naval Aviation Detachment M. I. T., 5 June '18; Miami, Fla., 17 Aug.; Pensacola, Fla., 1 Nov. '18—12 Feb. '19.
- JONES, J. E., JR. (XV) Pvt., S. A. T. C. Plattsburg Camp, 3 June—3 July, '18. Co. D, S. A. T. C., 10 Oct.—11 Dec. '18.
- JUSTICE, F. E. (I) Pvt., S. A. T. C., New York University, 1 Oct. '18.
- KANE, H. J. (XV) Pvt., S. A. T. C., M. I. T.
- KEARFUL, G. G. (XIV) Appr. Sea., S. N. T. C., M. I. T., 9 Oct.—10 Dec. '18.
- KELLEY, F. H. (I) Pvt., S. A. T. C., M. I. T.
- KELLEY, J. S. (XV) 1st Lt., Inf. Pvt., Inf., 11 May '17; 2d Lt., 15 Aug.; 1st Lt., 29 Apr. '18. 88th Div., 15 Aug. '17; 350th Inf., 29 Aug. '17. A. E. F., 28 Aug. '18—3 Aug. '19. Alsace Sector, Oct. '18; Meuse-Argonne Offensive, final phase, 7-11 Nov. '18.
- KELLOGG, P. M. (VI) Pvt., Co. E, S. A. T. C., 1 Oct.—11 Dec. '18.
- KEMPER, S. V., JR. (X) Ensign, U. S. N. R. F. Sea. 2 cl., U. S. N. R. F., 14 Dec. '17; C. M. M., 3 Dec. '18; Warrant Mch., 17 Apr. '19; Ensign, 14 June '19. San Pedro Naval Tr. Camp, Calif., 11 Mch. '18; Pelham Bay; U. S. Steam Engr. School, Stevens Inst., Hoboken, N. J., Nov.; Overseas Cruise, 8-31 May '19.
- KENEFICK, R. F., JR. (XV) Appr. Sea., S. N. T. C., M. I. T.
- KENNEDY, J. H., JR. (V) Pvt., S. A. T. C., M. I. T.
- KERR, CHARLES, JR. (VI) Pvt., C. A. C., 9 Oct. '18. Candidates Div., C. A. School.
- KERR, H. J. (XV) Act. Sgt., S. A. T. C., Gettysburg College, Gettysburg, Pa., 1 Oct. '18.
- KILLILEA, T. W. (I) Pvt., S. A. T. C., M. I. T.
- KING, A. S. (VI) Pvt., S. A. T. C., M. I. T.
- KING, C. J. (XV) Pvt., S. A. T. C., M. I. T.
- KIRKBY, W. R. (II) Pvt., S. A. T. C., M. I. T.
- KNIGHT, D. P. (VI) Pvt., Inf., S. A. T. C., M. I. T., 14 Oct. '18. See Civilian Record.
- KNIGHT, F. P., JR. (III) Pvt., S. A. T. C., M. I. T.
- KNIGHT, MONTGOMERY, (VI) Pvt., S. A. T. C., M. I. T.
- KOEHLER, E. H., JR. (X) Pvt., S. A. T. C., M. I. T.
- KUPOSKY, A. I. (XIII) Appr. Sea., S. N. T. C., M. I. T.
- LAIRD, L. B. (XV) Corp., F. A., S. A. T. C., Yale University, 25 Sept. '18.
- LAMONT, P. T. (III) Appr. Sea., S. N. T. C., M. I. T.
- LANE, F. S. (XV) 1st Lt., Inf. Pvt., Inf., 14 May '17; 312th Inf., 78th Div.
- LANE, J. J. (XIV) Appr. Sea., S. N. T. C., M. I. T.
- LANE, S. H. (VI) Pvt., S. A. T. C., M. I. T.
- LANG, W. H. (VI) Pvt., S. A. T. C., M. I. T.
- LAPPIN, C. R. (VI) Pvt., S. A. T. C., M. I. T.
- LARSSON, L. E. G. (X) Pvt., S. A. T. C., M. I. T.

TECHNOLOGY'S WAR RECORD

- LAUGHTON, W. M. (X) Pvt., S. A. T. C., M. I. T.
 LAVERTY, F. J. (XI) Pvt., S. A. T. C., M. I. T.
 LE COUR, H. J. (II) Appr. Sea., S. N. T. C., M. I. T.
 LEISK, H. N. (X) Pvt., S. A. T. C., M. I. T.
 LELAND, S. D., JR. (XV) Pvt., S. A. T. C., M. I. T.
 LE MOSY, F. W. (II) Pvt., S. A. T. C., M. I. T.
 LENNON, W. E. (X) Pvt., S. A. T. C., 10 Oct.—17 Dec. '18.
 LESHURE, W. D. (VIII) Pvt., S. A. T. C., M. I. T.
 LEVINE, I. B. (VI) Pvt., S. A. T. C., M. I. T.
 LEVIN, J. I. (II) Appr. Sea., S. N. T. C., M. I. T.
 LEVY, W. I. (XV) 2d Lt., C. A. C., 17 July '18; C. A. Sch., Fort Monroe, Va.
 LIECTY, J. L. (XV) Pvt., S. A. T. C., M. I. T.
 LINCOLN, E. L. (II) Pvt., S. A. T. C., M. I. T.
 LINCOLN, F. S. (VI) Pvt. 1 cl., Co. D, 303d Inf., 5 Oct. '17; Co. C, 307th Engrs., 9 Nov. '17. A. E. F., 19 May '18—17 July '19; G-2, Hq. 82d Div., 21 Nov. '18; Besancon University, 25 Feb. '19; Brest, 30 June '19. Toul Sector; Marbache Sector; St. Mihiel Offensive; Meuse-Argonne Offensive.
 LINSLEY, D. R. (XV) Pvt., S. A. T. C., M. I. T.
 LITTLEFIELD, R. M. (I) Pvt. 1 cl., Engrs., 11 Mch. '18. A. E. F., 24 May '18—2 July '19; Co. B, 33d Engrs.
 LOCKHART, H. G. (II) Pvt., S. A. T. C., M. I. T.
 LOCKLEY, K. L. (VI) Pvt., S. A. T. C., M. I. T.
 LOCKWOOD, J. E. (I) Pvt., S. A. T. C., M. I. T.
 LOOMER, H. N. (II) Sgt., Sig. C. Pvt., Sig. C, 25 July '17; Corp., 1 Mch. '18; Sgt., 1 Apr. '18. Sig. C. Reserves, 25 July '17; 317 Field Sig. Bn., 7 Nov. A. E. F., 9 July '18—6 June '19. St. Mihiel and Meuse-Argonne Offensive. Battalion Cited.
 LORD, P. E. (I) Pvt., S. A. T. C., M. I. T.
 LOUD, F. G. (XV) Pvt., S. A. T. C., M. I. T.
 LOVEJOY, JULIAN (XV) Elec. 1 cl., (R.), U. S. N. R. F., 11 Apr. '17. Charlestown Navy Yard, 20 June '17; Harvard Radio School, 21 June; Inst. Radio Work, Naval Tr. Station, Minneapolis, Minn., 20 Sept. '17—10 Jan. '19.
 LOVEJOY, S. W. (VI) Pvt., S. A. T. C., M. I. T. Minneapolis, Minn., 20 Sept. '17—10 Jan. '19.
 LUNDBORG, C. J. (VI) Pvt., S. A. T. C., M. I. T.
 LUYKX, D. J. (IV) Pvt., U. S. Army Ambulance Serv., 12 Oct. '17. A. E. F., S. S. U. 647, with French Army, Oct. '17. 12 Oct. '17—28 May '19; Seicheprey and Xivray with 26th Div., St. Mihiel Offensive; Meuse-Argonne Offensive; Army of Occupation. Section Citations from 26th and 82d Div. and Letter of Commendation from Hq.
 McAULIFFE, J. B. (VII) Appr. Sea., S. N. T. C., M. I. T.
 McCARTHY, C. J. (V) Pvt., S. A. T. C., M. I. T.
 McCORMICK, J. R., JR. (VI) Pvt., S. A. T. C., M. I. T.
 McCULLOUGH, A. E. (V) Appr. Sea., S. N. T. C., M. I. T.
 McCURDY, H. W. (II) Ensign, U. S. N. R. F. Appr. Sea., U. S. N., 12 Sept. '17; M. M. 2 cl.; M. M. 1 cl.; C. M.; Warrant Mach.; Ensign (E.), U. S. N. R. F. Pacific Fleet, Sept. '17—Apr. '18; abroad, Apr. '18—Oct. '18; Inst., Steam Engr. School, Stevens Institute, Hoboken, N. J., Oct. '18—June '19.
 MacDONALD, H. D. (XV) Pvt., S. A. T. C., M. I. T.
 McDONALD, J. A. (XV) Ensign (E.), U. S. N., Dec. '17. Transport and convoy service; Naval Steam Engr. School, Stevens Inst. of Tech., Hoboken, N. J.
 McDONOUGH, F. L. (XV) Supply Sgt., Med. C. Pvt., Med. C., 16 June '17; Supply Sgt., S. A. T. C., M. I. T., 11 Oct. '18. Base Hosp. No. 7, Feb. '18; S. A. T. C., M. I. T., 7 Oct.—Dec. '18.
 McFARLAND, J. B. (X) Appr. Sea., S. N. T. C., M. I. T.
 McGHIE, M. S. (II) Appr. Sea., S. N. T. C., M. I. T., Oct.—20 Dec. '18.
 McGRADY, C. T. (II) Pvt., S. A. T. C., M. I. T.
 McGRAIL, J. V. (XV) Appr. Sea., S. N. T. C., M. I. T.
 McINROE, W. G. (II) Pvt., S. A. T. C., M. I. T.
 McINTOSH, C. D. (IV) 2d Lt., F. A. R. C. 15 Oct. '18—31 Jan. '19.
 McINTYRE, H. B. (XV) Ensign (T.), U. S. N. Elec. 3 cl., (R.), U. S. N. R. F., 4 Apr. '17; Elec. 2 cl., (R.), Aug.; Elec. 1 cl., (R.), Nov.; Ensign, U. S. N. R. F., 22 May '18; Ensign, (T.) U. S. N., 18 Sept. '18. U. S. S. Connecticut, Pennsylvania, Vermont, Petrel, Nebraska and Topeka.
 McIVER, W. R. (III) Pvt., Marine C., 12 Oct. '18. Act. Sgt., Marine Unit, Harvard University.
 McLEAN, WILLIAM (X) Pvt., S. A. T. C., M. I. T., Oct. '18.

REGISTER OF MILITARY RECORDS

- MACMAHON, W. K. (II) 2d Lt., C. A. C. Pvt., C. A. C., 3 June '18; 2d Lt., C. A. C., 25 Sept. C. A. Sch., Ft. Monroe, Va., 6 July—9 Dec. '18.
- McQUEER, B. H. (X) Sgt., Engrs. Pvt., Engrs., 30 May '17; Corp., Oct.; Sgt., Apr. '18. A. E. F., 21 Dec. '17—11 Feb. '19; 6th Engrs., 3d Div. Aisne-Marne Offensive; Meuse-Argonne Offensive.
- McQUODE, T. E. (XIII) Pvt., S. A. T. C., M. I. T.
- McWANE, WILLIAM (XV) Appr. Sea., S. N. T. C., M. I. T., 12 Oct.—23 Dec. '18.
- MACKENZIE, LACHLAN (XV) Pvt. Co. E, S. A. T. C., 11 Oct. '18.
- MACOMBER, J. K. (II) Pvt., S. A. T. C., M. I. T.
- MADDEN, K. E. (I) Pvt., S. A. T. C., M. I. T.
- MADDOCKS, A. W. (II) 1st Lt., C. W. S. Pvt., Inf., 3 Apr. '17; Regtl. Supply Sgt., 13 May; 2d Lt., 13 May '18; 1st Lt., C. W. S., 13 Nov. '18. 103d Inf., 26th Div., 3 Apr. '17. A. E. F., 9 Oct. '17—Jan. '19; 1st Army Candidate School, winter '17—'18; French Front studying trench warfare, spring, '18; Bn. Gas Officer, 123d Machine Gun Bn., June; Asst. Gas Officer, Hq., 33d Div., Aug. '18. Alsa Sector; Albert Sector; St. Mihiel Sector; Meuse-Argonne Offensive.
- MAGARIAN, M. C. (VIII) Pvt., S. A. T. C., M. I. T.
- MAGEE, F. J. (I) Pvt., S. A. T. C., M. I. T.
- MAHONEY, H. D. (II) Pvt., S. A. T. C., M. I. T.
- MAHONEY, J. A. (X) Pvt., S. A. T. C., M. I. T., 12 Oct. '18.
- MARKSON, Y. D. (XV) Pvt., S. A. T. C., M. I. T.
- MARMON, F. H., Corp., S. A. T. C., M. I. T., 10 Oct.—10 Dec. '18.
- MARSHALL, L. F. (XV) Appr. Sea., S. N. T. C., M. I. T.
- MARTIN, J. T. (VI) Pvt., Ord. C. Pvt., Inf., Aug. '18. Transferred to Ord. C., Sept. 22d Co., Camp Devens, Mass., Aug. '18; Bethlehem Steel Co. Proving Grounds, and Amatol, N. J., Sept. '18.
- MASCHAL, C. W. (II) Ensign, U. S. N. R. F. Sea., U. S. N. R. F., 30 Mch. '17; Q. M. 2 cl., (A.), 7 Jan. '18; C. Q. M. (A.), 15 Aug.; Ensign, 13 Nov. '18. Disch., 19 June '19.
- MASON, J. C. (V) Appr. Sea., S. N. T. C., M. I. T.
- MATARESE, A. D. (XIII) Pvt., S. A. T. C., M. I. T.
- MATTHEWS, T. E. (I) Pvt., S. A. T. C., M. I. T.
- MAXIM, H. H. (II) Appr. Sea., S. N. T. C., M. I. T.
- MECHLING, E. B. (VI) 1st Lt., Aviation Sect., Sig. R. C. Pvt. 1 cl., Aviation Sect., Sig. E. R. C., 20 Oct. '17; 2d Lt., A. S., Sig. R. C., 20 Apr. '18; 1st Lt., 29 Apr. '19. Inst. Formation Flying, Payne Field, Miss., 29 May '18—12 Sept. '18; Inst., Pursuit Acrobatics, Carlstrom Field, Fla., 5 Nov. '18—3 Apr. '19.
- MEIGS, JONATHAN (VI) Pvt., S. A. T. C., M. I. T.
- MENDINHALL, C. E. (X) Appr. Sea., S. N. T. C., M. I. T.
- MERRILL, E. A. (IV) Pvt., S. A. T. C., University of Minnesota, 11 Oct.—16 Dec. '18.
- MESMER, A. J. (XV) Lt. (j. g.), U. S. N. R. F. Sea. 2 cl., U. S. N. R. F., Oct. '17; Coxs., Dec.; C. B., Feb. '18; Ensign, June; Lt. (j. g.), June '19. Fleet, Cruiser and Transport Force; on foreign service, June '18—June '19.
- METCALF, H. F. (VI) Pvt., S. A. T. C., M. I. T.
- MEYER, M. P. (XI) Appr. Sea., S. N. T. C., M. I. T.
- MILES, FREDERICK, JR. (X) Pvt., S. A. T. C., M. I. T.
- MILLER, J. C. C. (X) Pvt., S. A. T. C., M. I. T.
- MILLER, T. T. (XV) Pvt., S. A. T. C., M. I. T.
- MILLIKEN, A. W. (VI) Pvt., S. A. T. C., M. I. T.
- MINK, E. J. (II) Appr. Sea., S. N. T. C., M. I. T.
- MINOT, FRANCIS (XIII) Appr. Sea., U. S. N. R. F. Naval Tr. Station, Hingham, Mass., Aug. '18; Naval Hosp., Chelsea, Mass., 28 Nov. '18. Disch., 20 Dec. '18.
- MISKELLY, R. E. (X) Pvt., S. A. T. C., M. I. T.
- MITCHELL, J. E. (I) Pvt., S. A. T. C., M. I. T.
- MOORE, C. G. (V) Appr. Sea., S. N. T. C., M. I. T.
- MORGAN, F. R. (I) Pvt., Co. B, S. A. T. C., 10 Oct.—11 Dec. '18.
- MORGAN, MYLES (III) Pvt., S. A. T. C., M. I. T.
- MORGAN, W. V. (X) Pvt., C. W. S., 17 Sept. '18. Research work at Bu. of Standards, 17 Sept.—20 Dec. '18. See Civilian Record.
- MORRILL, JACK (II) Pvt., S. A. T. C., M. I. T.
- MORRIS, F. H. (IX) Mr. Gun., C. A. C. Pvt., C. A. C., 8 Mch. '18; Mr. Gun., 30 Sept. '18. Enlisted Specialists' Sch., Ft. Monroe, Va., Mch. '18; 38th Arty., C. A. C., Sept.—Jan. '19.
- MORROW, L. A. (XV) Pvt., S. A. T. C., M. I. T.

TECHNOLOGY'S WAR RECORD

- MORSE, C. B. (XV) Pvt. 1 cl., C. A. C. 72d Arty., C. A. C., July '18. A. E. F., 5 Aug. '18—2 Mch. '19.
- MORTON, J. B. (II) Appr. Sea., S. N. T. C., M. I. T.
- MORTON, J. R. (XIII) Ensign (T.), U. S. N. Sea., 2 cl., U. S. N. R. F., 10 Aug. '17; Ensign, U. S. N. R. F.; Ensign (T.), U. S. N. U.S.S. Rochester and U.S.S. Greene; Naval Academy, Annapolis, Md.
- MOSHER, H. A. (VI) Pvt., S. A. T. C., M. I. T.
- MOYNIHAN, J. C. (I) Appr. Sea., S. N. T. C., M. I. T.
- MULLIN, J. T. (VI) Pvt., S. A. T. C., M. I. T.
- MULLOY, L. E. (X) Pvt., S. A. T. C., M. I. T.
- MUNNING, A. P. (X) Pvt., S. A. T. C., M. I. T.
- MURPHY, J. J. (X) Pvt., S. A. T. C., M. I. T.
- MYER, C. R., JR. (II) Appr. Sea., S. N. T. C., M. I. T.
- MYERS, C. R. 2d (X) Appr. Sea., U. S. N. R. F. Petty Officer (Plat. Comdr.), S. N. T. C., M. I. T., 8 Oct. '18.
- NEILEY, S. B. (XV) Sea. 2 cl., U. S. N. R. F., 20 June '18. Great Lakes Training Station, June '18; S. N. T. C., M. I. T., 23 Oct.—17 Dec. '18.
- NELSON, R. J. (II) Pvt., S. A. T. C., M. I. T.
- NESMITH, JAMES, 2d (VI) Pvt., S. A. T. C., M. I. T.
- NEWMAN, ANSLEY (VI) Pvt., F. A., S. A. T. C., Yale University, Sept. '18.
- NOELTE, A. E. (II) Appr. Sea., S. N. T. C., M. I. T.
- NORRIS, GEORGE (X) Pvt., Co. A, S. A. T. C., 12 Oct.—17 Dec. '18.
- NORTON, J. R. (VI) Pvt., S. A. T. C., M. I. T.
- NORTON, L. M. (I) Pvt., S. A. T. C., M. I. T.
- NOVAK, J. J. (II) Pvt., S. A. T. C., M. I. T.
- NOVECK, G. A. (I) Corp., Inf. Pvt., Inf., 28 Aug. '18; Corp., 1 Nov. '18. 5th Co., 151st Depot Brig., Camp Devens, Mass., 28 Aug. '18; 45th Co., 151st Depot Brig. (Non-commissioned Off. Tr. Sch.); Co. Clerk, 5th Co., 1 Dec. '18—24 Feb. '19.
- NOYES, W. H. (X) Appr. Sea., S. N. T. C., M. I. T.
- OAKES, R. B. (X) Pvt., S. A. T. C.
- ODAMS, L. N. (X) 1st Lt., Inf. Pvt., Inf., 14 May '17; 1st Lt., Inf., 15 Aug. '17. 303 M. G. Bn. A. E. F., France, 8 July '18—23 July '19; 148th M. G. Bn.
- ODDLAFSON, A. G. (VI) 1st Lt., Inf. (British). Pvt., Inf. (Canadian), Sept. '14; Sgt., Apr. '16; 2d Lt., Sept. '17; 1st Lt., Mch. '19. 78 Bn., Canadian Militia, Sept. '14. C. E. F., Oct. '16—May '19; The London Regt., Passchendaele, '17; German Offensive, Mch. '18. A prisoner of war in Germany from Mch.—11 Nov. '18.
- O'HEARN, E. F. (XV) Pvt., S. A. T. C., M. I. T.
- OLIVER, E. L. (I) 2d Lt., C. A. C. Pvt., C. A. C., 19 July '17; Corp., Sept.; Sgt., Jan. '18; 2d Lt., 25 June '18. 2d D. C., C. A., 19 July '17; Off. Tr. Camp, Ft. Monroe, Va., Apr. '18; 48th Arty., C. A. C., Oct. '18—Apr. '19.
- OLSSON, R. W. (XV) Pvt., S. A. T. C., M. I. T.
- ORTIZ, A. L. (X) Pvt., S. A. T. C., M. I. T.
- PACKARD, C. A. (X) Pvt., S. A. T. C., M. I. T.
- PAGE, A. E. (VI) Pvt., S. A. T. C., M. I. T.
- *PAINE, A. I. See Roll of Honor (page 123).
- PARKER, M. E. (II) Pvt., S. A. T. C., M. I. T.
- PARSONS, A. D. (I) Pvt., S. A. T. C., M. I. T.
- PASSANO, L. M., JR., Appr. Sea., S. N. T. C., M. I. T.
- PATCHETT, W. H. (VI) Appr. Sea., S. N. T. C., M. I. T.
- PATRICK, SAMUEL, JR. (II) Pvt., S. A. T. C., M. I. T.
- PAUL, F. C. (X) Appr. Sea., S. N. T. C., M. I. T.
- PAYNE, H. J. (X) Pvt., S. A. T. C., M. I. T.
- PEALE, W. B. (III) C. Q. M. (A.), U. S. N. R. F., '18.
- PEARSON, H. L. (II) 1st Sgt., Co. A, S. A. T. C., 10 Oct. '18.
- PEARSON, R. S. (I) Pvt., S. A. T. C., M. I. T.
- PENNELL, E. G. (IV) Pvt., S. A. T. C., M. I. T.
- PERKINS, A. M. (II) Pvt., S. A. T. C., M. I. T., Oct.—11 Dec. '18. See Civilian Record.
- PERKINS, C. W. (XV) Pvt., S. A. T. C., M. I. T.
- PERKINS, E. H. (II) Appr. Sea., S. N. T. C., Harvard University, Oct. '18.
- PERKINS, M. D. (I) Pvt., Inf. M. G. Co., 13th Inf.; Camp Fremont, Cal., Aug. '18; Port of Embarkation, 11 Nov.; Camp Merritt, N. J., until 2 July '19.
- PERKINS, W. F. (II) Appr. Sea., S. N. T. C., M. I. T., 15 Oct.—Dec. '18.

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- PERRI, D. J. (I) Pvt., S. A. T. C., M. I. T.
 PERRIN, HUGH (I) Appr. Sea., S. N. T. C., M. I. T.
 PERRY, J. R. (VI) Appr. Sea., S. N. T. C., M. I. T.
 PERRY, W. M. (X) Pvt., S. A. T. C., M. I. T.
 PERSKY, JOSIAH (X) Appr. Sea., S. N. T. C., M. I. T.
 PETTENGILL, R. G. (VI) Pvt., S. A. T. C., M. I. T.
 PHELAN, L. T. (VI) Pvt., S. A. T. C., M. I. T.
 PHELPS, D. S. (III) Pvt., S. A. T. C., M. I. T.
 PHILLIPS, A. G. (II) Pvt., S. A. T. C., M. I. T.
 PHINNEY, H. M. (X) Ensign, U. S. N. R. F. Sea. 2 cl., U. S. N. R. F., 4 June '18; C. B. M., 19 Aug.; Ensign, 17 Dec. '18. Ensign Sch., Harvard University, June '18. Still in service, Oct. '19.
 PIERCE, J. F. (I) Appr. Sea., S. N. T. C., M. I. T.
 PINNEY, T. H. (VI) Pvt., S. A. T. C., M. I. T.
 PLIMPTON, J. A. (II) Pvt., S. A. T. C., M. I. T.
 POMEROY, ELTWEED, JR. (XV) Pvt., S. A. T. C., Texas Agricultural and Mechanical College, 23 Oct. '18.
 POOLE, J. W. (I) Pvt., S. A. T. C., M. I. T., 17 Oct. '18.
 POPE, C. F., JR. (XIII) Pvt., S. A. T. C., M. I. T.
 POTTER, E. W. (VI) Appr. Sea., S. N. T. C., M. I. T.
 POTTER, G. W. (XV) Pvt., Co. D, S. A. T. C., M. I. T., 12 Oct.—14 Dec. '18.
 POTTER, W. F. (VI) Pvt., S. A. T. C., M. I. T.
 POWELL, B. B. (II) Pvt. 1 cl., Sig. C. Entered Service 3 June '17. Camp Devens, Mass., Oct. '17—July '18. A. E. F., July '18—July '19, 301st Field Sig. Bn. Marbache Sector, 25 Sept.—11 Nov. '18.
 POWELL, P. W. (I) Pvt., S. A. T. C., M. I. T.
 POWERS, L. W. (XV) Appr. Sea., S. N. T. C., M. I. T.
 PRATT, FEARING (VI) Elec. 2 cl., (R.), U. S. N. R. F. Sea., U. S. N. R. F., 20 June '18; Elec. 2 cl., (R.), 28 Dec. '18. Nava Radio Sch., Cambridge, Aug. '18; Radio Telephone School, New London, Conn., Jan.—Feb. '19.
 PRATT, W. J. H. (II) Pvt., S. A. T. C., M. I. T.
 PRESCOTT, ROBERT (XV) Pvt., S. A. T. C., M. I. T.
 PROUT, B. H. (II) Pvt., S. A. T. C., M. I. T.
 PROUT, G. R. (VI) Pvt., S. A. T. C., M. I. T.
 PURINTON, W. B. (X) Appr. Sea., S. N. T. C., M. I. T.
 PURL, F. M. (X) Pvt., S. A. T. C., M. I. T.
 QUINLAN, T. F. (I) Pvt., S. A. T. C., M. I. T.
 RADCLIFFE, O. T. (XV) Appr. Sea., S. N. T. C., M. I. T.
 RAIRDEN, A. S. (III) Pvt., S. A. T. C., M. I. T., 16 Oct.—11 Dec. '18.
 RAMSAY, G. D. (III) 2d Lt., Inf. Pvt., Inf., 10 Oct. '18; 2d Lt., Inf. R. C., 15 Jan. '19. Cent. Off. Tr. Sch., Camp Lee, Va., Oct. '18.
 RAMSAY, H. M. (IX) Appr. Sea., S. N. T. C., M. I. T.
 RANDLETT, N. P. (IV) Pvt., Arty., S. A. T. C., New Hampshire College, 31 Oct.—21 Dec. '18.
 RANLETT, F. J., JR. (II) Pvt., S. A. T. C., M. I. T., Oct., '18.
 RAPP, W. G. (I) 2d Lt., C. A. C. Pvt., Sig. C., 24 Sept. '17; Sgt., 1 Nov.; 2d Lt., 19 July '18. Burlington Camp, July—Aug. '17; Plattsburg, July—Aug. '15; 302d Field Sig. Bn. Camp Upton, N. Y., Sept. '17; 3d Off. Tr. Sch., Camp Upton, 5 Jan. '18; 30th Serv. Co., Sig. C., New York City, 25 Mch.; 13th Bn. Repl. Camp, Camp Lee, Va., 19 July '18—8 Jan. '19.
 RAYMOND, F. L. (XV) Pvt., S. A. T. C., M. I. T.
 READ, J. M. (II) Pvt., S. A. T. C., M. I. T.
 REDWAY, A. S. (II) Pvt., S. A. T. C., Tufts College, 14 Oct. '18.
 REICHE, PARRY (III) Pvt., S. A. T. C., M. I. T.
 REMSEN, J. W. K. (I) Pvt., S. A. T. C., M. I. T.
 RESNICK, H. M. (V) Pvt., S. A. T. C., M. I. T.
 RETTEW, H. F. (II) Pvt., S. A. T. C., M. I. T.
 RICE, E. A. (VI) 2d Lt., C. A. C. Elec. Sgt., 20 June '18; 2d Lt., C. A. R. C., 27 Mch. '18. Mass. C. A., 20 June '17; Ft. Andrews, Boston, 25 July '17; 3d Off. Tr. Camp, Ft. Monroe, Va., 5 Jan. '18; Ft. Strong, Mass., 29 Mch. '18. A. E. F., 30 July '18—11 Feb. '19; 71st Arty., C. A. C.; Arty. School, Sig. Officer, 71st Arty.
 RICH, W. T., JR. (X) Pvt., S. A. T. C., M. I. T.

TECHNOLOGY'S WAR RECORD

- RICHARDS, C. R., JR. (XV) 2d Lt., Inf. Pvt., American Field Service, 17 Feb. '17; entered Engrs., U. S. A., 12 Sept.; 1st Lt., 25 Sept. '18. Service in France, 17 Feb. '17—11 July '19; ambulance service; 17th Engrs.; interpreter; 6th Inf. Vosges Sector; Meuse-Argonne Offensive.
- RICHARDS, H. F. (I) Pvt., S. A. T. C. Pvt., Aviation Sect., Sig. E. R. C., 11 Jan. '18. Ground Sch., M. I. T., Jan. '18; discharged on account of ill health, 24 Aug.; tried to enter the Royal Air Force, in Canada; worked at Squantum until entering the S. A. T. C., 12 Oct. '18.
- RILEY, P. L. (XI) Pvt., S. A. T. C., M. I. T.
- ROACH, D. J. (I) Pvt., S. A. T. C., M. I. T.
- ROBBINS, B. E., JR. (II) Pvt., S. A. T. C., M. I. T.
- ROBBINS, B. G. (IX) Pvt., S. A. T. C., M. I. T.
- ROBBINS, K. W. (I) Pvt., Co. B, S. A. T. C., M. I. T., 10 Oct. '18.
- ROBERSON, W. C. (XV) 1st Sgt., Co. D, S. A. T. C., M. I. T., 4 Oct. '18.
- ROBESON, S. B. (II) Pvt., S. A. T. C., M. I. T.
- ROBERTSON, A. F. (XIV) Pvt., S. A. T. C., M. I. T.
- ROBINSON, C. H. (XIV) Pvt., S. A. T. C., M. I. T.
- ROBINSON, J. F. (XV) Pvt., S. A. T. C., M. I. T., 1 Oct. '18.
- ROBINSON, N. O. (XV) Appr. Sea., S. N. T. C., M. I. T.
- ROGERS, J. C. (VII) Appr. Sea., S. N. T. C., M. I. T.
- ROOP, R. W. (XI) Appr. Sea., S. N. T. C., M. I. T.
- ROSBECK, I. J. (II) Pvt., S. A. T. C., M. I. T.
- ROSE, J. H. (V) Pvt., S. A. T. C., M. I. T.
- ROSE, S. H. (II) Pvt., S. A. T. C., M. I. T., 16 Oct. '18.
- ROSS, W. B. (II) Appr. Sea., S. N. T. C., M. I. T.
- ROSSITER, M. P. (II) Pvt., S. A. T. C., M. I. T.
- ROUSE, A. W. (XV) Pvt., S. A. T. C., M. I. T.
- RUDDERHAM, C. G. (XV) Pvt., S. A. T. C., M. I. T.
- RUSHTON, E. R. (XIV) Pvt., S. A. T. C., M. I. T.
- RUSSELL, DANIEL, JR. (II) Appr. Sea., S. N. T. C., M. I. T.
- RUSSELL, F. H. (II) Pvt., S. A. T. C., M. I. T.
- RUSSELL, R. P. (X) Pvt., Marine C. 2d Separate M. G. Bn., Marine C., 30 June—26 Dec. '18.
- RUSSELL, W. W. (XV) Sgt., Engrs. (Canadian). Pvt., Engrs., 4 July '17; Sgt., Oct. '17. C. E. F., Aug. '17—July '19; Engrs. (Forestry), near St. Dizier, Haute Marne, Aug. '17; in hospitals (pneumonia), 28 Dec. '17—18 Sept. '18; Khaki University of Canada, Yorkshire, England, Nov. '18—July '19.
- SALLAWAY, J. E. (II) Appr. Sea., S. N. T. C., M. I. T., 1 Oct. '18.
- SAMMET, W. P. (XIII) 2d Lt., F. A. Pvt., F. A., 21 Sept. '17; Gun Corp., Nov.; Gun Sgt., Apr. '18; 2d Lt., F. A., June '18. Btry. E, 301st F. A., 76th Div., Camp Devens, 21 Sept. '17; 3d Off. Tr. Camp, Camp Devens, 5 Jan. '18. A. E. F., 15 Apr. '18—Aug. '19; Casual Co., Arty. Sch., Saumur; graduated, 30 July; Hq. Co., 132 F. A., 36th Div., Aug.; Repl. Depot, St. Aignan, Feb. '19; Sorbonne University, Paris, Apr. '19.
- SANBORN, E. E. (II) Pvt., Co. E, S. A. T. C., M. I. T., 1 Oct.—17 Dec. '18.
- SANDERS, L. B., JR. (XV) Pvt., S. A. T. C., M. I. T.
- SANDERSON, N. H., JR. (I) Pvt., S. A. T. C., 16 Oct. '18.
- SARGENT, F. H. (I) Pvt., S. A. T. C., M. I. T.
- SAWYER, D. D. (XV) Pvt., S. A. T. C., M. I. T.
- SCHAEFER, W. J. (X) Corp., Co. B, S. A. T. C., 1 Oct. '18.
- SCHNEIDERMAN, NATHAN (II) Pvt., S. A. T. C., 10 Oct. '18.
- SCHOTT, N. B. (VI) Pvt., S. A. T. C., M. I. T.
- SCHULMAN, WILLIAM (VI) Pvt., S. A. T. C., 1 Oct.—23 Dec. '18. See Civilian Record.
- SCHUMACKER, G. P. JR. (II) Pvt., S. A. T. C., M. I. T.
- SCHUR, A. P. (XI) Appr. Sea., S. N. T. C., M. I. T.
- SCHWAMB, E. B. (II) Pvt., S. A. T. C., M. I. T.
- SCHWAMB, T. A. (II) Pvt., S. A. T. C., M. I. T.
- SCOTT, G. A. (II) Appr. Sea., S. N. T. C., M. I. T.
- SCOTT, J. A. (VI) 1st Lt., C. A. C. Pvt. (Candidate), C. A. C., 10 May '17; 2d Lt., C. A. C., 15 Aug.; 1st Lt., 7 Feb. '18. 1st Off. Tr. Camp, May '17; Coast Defense of Columbia, 15 Aug. '17. A. E. F., 16 Aug. '18—8 Mch. '19; 69th Arty. (C. A. C.) May '18.
- SCOTT, R. B. (XV) Pvt., S. A. T. C., M. I. T., Sept. '18.
- SEABURY, G. H. (II) Pvt., S. A. T. C., M. I. T.
- SECORD, H. W. M. (VI) Appr. Sea., S. N. T. C., M. I. T.

REGISTER OF MILITARY RECORDS

- SEDER, M. B. (X) Appr. Sea., S. N. T. C., M. I. T.
- SHAMPANIER, MANUEL (XV) Inst., Recruiting Service, U. S. Shipping Bd. Apprentice, 25 July '18; Inst. 15 Nov. '18—10 Jan. '19. This branch trained thousands of sailors, cooks and firemen.
- SHATTUCK, C. W. (II) 2d Lt., A. S. (Aerial Observer). Pvt., (Cadet), A. S., 3 Jan. '18; 2d Lt., 2 Nov. '18. School of Military Aeronautics, Princeton, N. J., 11 May '18; School of Fire, Fort Sill, Okla., 14 Sept.; Post Field, Okla., 2 Nov.—20 Dec.
- SHATTUCK, G. A. (X) Pvt., S. A. T. C., M. I. T.
- SHAW, D. N. (X) Pvt., S. A. T. C., M. I. T.
- SHAW, E. C. (I) Pvt., S. A. T. C., M. I. T.
- SHEARER, W. E. (XIII) Pvt., S. A. T. C., M. I. T.
- SHEPHERD, T. E. (X) Pvt., S. A. T. C., M. I. T., 14 Oct. '18.
- SHEPPARD, M. K. (II) Appr. Sea., S. N. T. C., M. I. T.
- SHERBROOK, R. E. (II) Appr. Sea., S. N. T. C., M. I. T., 10 Oct.—21 Dec. '18.
- SHERMAN, W. A. (V) Pvt., S. A. T. C., M. I. T.
- SHERMAN, WARREN (XV) Pvt., Sn. C. Ambulance 148, Sn. Train, 37th Div., 23 May '17. A. E. F., France and Belgium, 26 June '18—15 Mch. '19. Baccarat Sector; Avocourt Sector; Meuse-Argonne Offensive; Pannes Sector; Ypres-Lys Offensive.
- SILVERMAN, I. J. (X) Appr. Sea., S. N. T. C., M. I. T.
- SJOSTROM, R. L. (X) Appr. Sea., S. N. T. C., M. I. T.
- SKINNER, FRANK (II) Pvt., S. A. T. C., M. I. T., 11 Oct.—Dec. '18. See Civilian Record.
- SLADE, H. A. (V) Pvt., S. A. T. C., M. I. T.
- SLAYTER, F. E. (XV) Appr. Sea., S. N. T. C., M. I. T.
- SMITH, A. E. (XV) Appr. Sea., S. N. T. C., M. I. T.
- SMITH, EASTMAN (II) Pvt. 1 cl., Med. C. Entered Service, 22 Apr. '18. A. E. F., 15 June '18—7 Apr. '19; Base Hospital 202.
- SMITH, HAROLD W. (X) Pvt., S. A. T. C., M. I. T.
- SMITH, HERBERT W. (XV) Pvt., S. A. T. C., M. I. T.
- SMITH, I. J., JR. (X) Appr. Sea., S. N. T. C. Rensselaer Polytechnic Institute, Troy, N. Y., 4 Oct.—19 Dec. '18.
- SMITH, N. L. (I) Pvt., S. A. T. C., M. I. T.
- SMITH, W. A. (II) Pvt., S. A. T. C., M. I. T.
- SNELL, F. A. (II) Pvt., S. A. T. C., M. I. T.
- SNOW, W. F. (II) Appr. Sea., S. N. T. C., M. I. T.
- SPALDING, F. W. (II) Appr. Sea., S. N. T. C., 14 Oct.—17 Dec. '18.
- SPEAR, L. E. (XV) C. M. M., U. S. N. R. F. San Pedro, Calif., 18 May '18; Pelham Bay Park, N. Y., Nov.; Stevens Institute, Hoboken, N. J., Jan. '19.
- SPOFFORD, C. P. (X) Appr. Sea., S. N. T. C., M. I. T.
- STAGG, D. E. (XV) Appr. Sea., U. S. N. R. F. S. N. T. C., M. I. T.
- STALL, R. G. (II) Appr. Sea., S. N. T. C., M. I. T.
- STANLEY, H. P. (II) Pvt., S. A. T. C., M. I. T., 15 Oct. '18.
- STEPHENS, H. H. (X) Pvt., S. A. T. C., M. I. T.
- STEUER, W. A. (XV) Appr. Sea., S. N. T. C., M. I. T.
- STEVENS, A. H. (VII) Pvt., S. A. T. C., M. I. T.
- STEVENS, P. C. (IV) Pvt., S. A. T. C., M. I. T.
- STEWART, T. B., JR. (I) Pvt., S. A. T. C., M. I. T.
- STEWART, D. C. (VI) Pvt., S. A. T. C., M. I. T., 10 Oct.—17 Dec. '18.
- STOCKBRIDGE, H. A. (XV) Pvt., S. A. T. C., M. I. T.
- STONE, R. A. (II) Pvt., Co. H, S. A. T. C., M. I. T., 14 Oct. '18.
- STOSE, C. W. (X) Pvt., S. A. T. C., M. I. T.
- STRAUSS, S. M. (I) Pvt., S. A. T. C., M. I. T.
- STUART, R. D., JR. (XIV) Pvt., S. A. T. C., M. I. T., Oct. '18.
- SULLIVAN, C. D. (X) 2d Lt., Inf. Pvt., Inf., 20 June '18; 2d Lt., 16 Sept. '18. Off. Tr. Camp, Plattsburg, N. Y., 20 June '18; Inf. Repl. Troops. Camp Grant, Ill., 18 Sept.—30 Jan. '19.
- SULLIVAN, J. P. (II) Pvt., S. A. T. C., M. I. T.
- SWAN, G. D. (IV) 2d Lt., Royal Air Forces (British), 4 May '18.
- SWEM, L. A. (II) Pvt., S. A. T. C., M. I. T.
- SWENSON, H. S. (III) Pvt., S. A. T. C., M. I. T.
- TABOR, L. P. (X) Pvt., S. A. T. C., M. I. T., 11 Oct.—18 Dec. '18.

TECHNOLOGY'S WAR RECORD

- TAIT, D. (X) Pvt., S. A. T. C., M. I. T.
- TAUSSIG, F. B. (II) Appr. Sea., S. N. T. C., M. I. T.
- TAYLOR, G. E. (X) Pvt., Arty. Btry. B, 148 F. A., 4 Aug. '17. A. E. F., 1 Jan. '18—31 Jan. '19. Hq. 66th F. A. Brig. Aisne-Marne Offensive (Château-Thierry); Vesle; St. Mihiel Offensive; Meuse-Argonne Offensive. Contusion of skull from shrapnel.
- TAYLOR, T. M. (III) Pvt., S. A. T. C., M. I. T., 7 Oct. '18.
- TERKELSEN, E. A. (II) Appr. Sea., S. N. T. C., M. I. T.
- THAYER, P. J. (V) Appr. Sea., S. N. T. C., M. I. T.
- THOMAS, E. R. (VI) Pvt., S. A. T. C., M. I. T.
- THOMAS, L. E. (III) Pvt., S. A. T. C., M. I. T.
- THOMPSON, A. J. (I) Appr. Sea., S. N. T. C., M. I. T.
- THOMPSON, N. (X) Pvt., S. A. T. C., M. I. T.
- THOMPSON, W. G. (XV) Appr. Sea., S. N. T. C., M. I. T.
- THOMPSON, W. M. (VI) Pvt., Inf. (Canadian). 20th Machine Gun Co., Canada, 17 May '18; Siberia, Dec. '18—May '19.
- THULMAN, R. K. (XV) Pvt., S. A. T. C., M. I. T.
- THORON, B. W. (IX) 2d Lt., Inf. Pvt. 1 cl., Inf., 16 May '18; 2d Lt., 16 Sept. '18. 4th Off. Tr. Camp, Camp Devens, Mass., May '18; Central Machine Gun Off. Tr. Sch., Camp Hancock, Ga., 21 June '18—4 Jan. '19. See Civilian Record.
- TICKNOR, M. F. (I) Pvt., S. A. T. C., M. I. T.
- TONON, A. R. (XV) App. Sea., S. N. T. C., M. I. T.
- TOWNE, G. H. (II) Pvt., S. A. T. C., M. I. T.
- TRIPP, W. A. (VI) Pvt., S. A. T. C., 10 Oct.—18 Dec. '18.
- TRUE, O. S. (X) 2d Lt., Inf. Pvt., Inf., 5 Jan. '18; 2d Lt., 1 June '18. Co. D, 306th Inf., Camp Upton, N. Y., 5 Jan. '18. A. E. F., 16 Apr. '18—5 July '19; 77th Div.; Co. H, 167th Inf., 42d Div. Aisne-Marne Offensive; St. Mihiel Offensive; Meuse-Argonne Offensive.
- TUCKER, C. M. (VII) Pvt., S. A. T. C., M. I. T.
- TUCKER, N. A. (VI) Pvt., S. A. T. C., M. I. T.
- TURBET, W. J. (II) Appr. Sea., S. N. T. C., M. I. T.
- TURNER, E. E., JR. (XIV) Appr. Sea., S. N. T. C., M. I. T.
- TURNER, S. W. (II) Appr. Sea., S. N. T. C., M. I. T.
- TYSON, C. W. (X) Pvt., S. A. T. C., M. I. T., 10 Oct. '18.
- UNDERWOOD, R. H. (II) Pvt., S. A. T. C., M. I. T.
- UPHAM, H. E. (II) Pvt., S. A. T. C., M. I. T.
- VAHLBERG, W. Q. (IV) Pvt., Aviation Sect., Sig. C. 353d Aero Sq., New Mexico, 4 Jan. '18.
- VAN PELT, E. V. B., JR. (VI) Appr. Sea., S. N. T. C., M. I. T., 4 Oct. '18.
- VAN TUYL, E. E. (II) Pvt., S. A. T. C., M. I. T.
- VAUGHN, R. L. (II) Pvt., S. A. T. C., M. I. T.
- VILETT, E. W. (VI), Pvt., S. A. T. C., M. I. T.
- VINCENT, A. G. (II) Pvt., S. A. T. C., M. I. T., 1 Oct. '18.
- VREELAND, K. M. (II) Appr. Sea., S. N. T. C., M. I. T.
- WAGNER, H. C. (X) 2d Lt., Inf. Pvt. 1 cl., Inf., July '18; 2d Lt., Inf., 2 Oct. '18. Plattsburg Bks., N. Y., July '18; Camp Perry, Ohio, Aug.; Camp Grant, Ill., 22 Oct.; San Francisco, Calif., 4-16 Sept. '19.
- WALCH, D. E. (VI) Sgt., Inf. Sgt., S. A. T. C., M. I. T., Oct. '18; Sgt., Inf., Camp Devens, Mass. See Civilian Record.
- WALKE, R. S. (VI) Pvt., Casual Co., Arty., S. A. T. C., Columbia University, N. Y., 30 Oct.—12 Dec. '18.
- WALKER, W. H. (VI) Appr. Sea., S. N. T. C., M. I. T.
- WARD, J. S., JR. (I) Pvt., S. A. T. C., M. I. T.
- WASHBURN, P. C. (II) Appr. Sea., S. N. T. C., M. I. T.
- WAUGH, D. R. (XV) Pvt., S. A. T. C., M. I. T., 10 Oct. '18.
- WEBBER, J. T. (VI) Pvt., S. A. T. C., M. I. T.
- WEBSTER, F. D. (VI) Pvt., S. A. T. C., M. I. T.
- WEBSTER, R. C. (II) Appr. Sea., S. N. T. C., M. I. T.
- WEED, N. H. (XIII) Pvt., S. A. T. C., M. I. T.
- WEINBERG, S. H. (II) Pvt., S. A. T. C., M. I. T.
- WELLING, C. M. (X) Pvt., S. A. T. C., M. I. T.
- WELLS, E. D. (XIII) Appr. Sea., S. N. T. C., M. I. T.

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- WELLS, F. G. (XII) Pvt., S. A. T. C., M. I. T.
- WERRA, M. C. J. (XV) Pvt., M. T. C. Entered Service, 27 May '18. A. E. F., 20 Aug. '18—6 June '19; 463d M. T. Co., 417th Motor Supply Train. Meuse-Argonne Offensive, 25 Sept.—11 Nov. '18; Army of Occupation.
- WERRA, J. W., Appr. Sea., S. N. T. C., Marquette University, Milwaukee, Wis., 1 Oct. '18.
- WESTFIELD, H. E. (VI) Appr. Sea., S. N. T. C., M. I. T.
- WHELAN, A. W. (VIII) Pvt., S. A. T. C., M. I. T.
- WHITE, H. E. (I) Regtl. Sgt. Maj., S. A. T. C., 30 Sept. '18.
- WHITE, T. E. (III) Pvt., S. A. T. C., M. I. T.
- WHITAKER, K. W. (X) Appr. Sea., S. N. T. C., M. I. T.
- WHITING, A. C. (II) Pvt., S. A. T. C., M. I. T.
- WHITLEY, F. T. (III) Pvt., S. A. T. C., M. I. T.
- WHITMAN, S. E. (I) Pvt., S. A. T. C., M. I. T.
- WHITMAN, V. E. (XIV) Pvt., S. A. T. C., M. I. T., 10 Oct. '18. See Civilian Record.
- WHITTEMORE, C. W. (X) Pvt., S. A. T. C., 10 Oct.—17 Dec. '18.
- WHITTEN, G. P. (X) Pvt., S. A. T. C., M. I. T.
- WHITTLE, W. L. (V) Appr. Sea., S. N. T. C., M. I. T.
- WHITTUM, C. H. (VI) Pvt., S. A. T. C., M. I. T.
- WILBUR, H. A. (XI) Pvt., S. A. T. C., M. I. T.
- WILKINS, F. E. (XV) Pvt., S. A. T. C., M. I. T., 10 Oct. '18.
- WILKS, A. P. (I) Pvt., S. A. T. C. Pvt., French Motor Transport Service, June '17; American Red Cross, Oct.; S. A. T. C., Sept. '18. American Group, Military Transport 326, June '17; Red Cross Ambulance, Oct.; Staff Car Driver, U. S. A., 20 Oct.; transferred to S. A. T. C., M. I. T., Sept. '18. Aisne Sector '17. French Field Service Medal.
- WILLIAMS, H. L. (VI) Pvt., American Ambulance Service. A. E. F., 28 Apr. '17—Dec. '18; S. S. U. 26, France, May—Dec. '17; Verdun Offensive, Aug.; Section 3 in Italy, June—Dec. '18; Austrian Offensive, June '18; Italian advance to Trieste, Oct.—Nov. '18. Italian Service Medal.
- WILLIAMS, O. G. (II) Pvt., S. A. T. C., M. I. T.
- WILLIAMS, T. F. (VI) 2d Lt., C. A. C. Pvt., C. A. C., 30 June '17; Elec. Sgt. 1 cl., Mch. '18; 2d Lt., 26 June '18. Ft. Banks, Mass., July '17; Ft. Monroe, Va., Oct.; 11th Co., Coast Defense of Balboa, Ft. Amador, Canal Zone, July '18—Aug. '19.
- WILLIAMS, M. W. (II) Pvt., S. A. T. C., M. I. T., 30 Sept.—13 Dec. '18.
- WILLIAMSON, D. D. (XIV) 2d Lt., Inf. Pvt., Inf., 18 July '18; 2d Lt., 45th Machine Gun Bn., Camps Hancock and Logan.
- WILSON, E. MacN. (XV) 2d Lt., C. A. C. Pvt., C. A. C., 30 Sept. '18; 2d Lt., 10 Jan. '19. C. A. Off. Tr. Sch., Ft. Monroe, Va., 30 Sept.—10 Jan. '19.
- WILSON, M. S. (VI) Pvt., S. A. T. C., M. I. T.
- WILSON, P. P. (XV) Sgt., A. S. Pvt., A. S., 13 Dec. '17; Corp., 1 Mch. '18; Sgt., 21 May '19. A. E. F., 28 June '18—29 June '19; 227th Aero Sq.
- WINSLOW, E. L. (XIII) Midshipman, U. S. N. Naval Academy, Annapolis, Md., 19 June '17; Atlantic Fleet, June—Sept. '18; Annapolis, Oct. '18—June '19.
- WINSOR, PAUL, JR. (IX) Pvt., Co. E, S. A. T. C., M. I. T., 11 Oct.—11 Dec. '18.
- WOLF, J. R. (XV) Pvt., S. A. T. C., M. I. T.
- WOLSTENHOLME, J. G. (II) Pvt., S. A. T. C., M. I. T.
- WOOD, F. H. (II) Pvt., S. A. T. C., M. I. T.
- WOOD, G. A. (I) Pvt., S. A. T. C., M. I. T.
- WOOD, R. W. (XV) Pvt., S. A. T. C., M. I. T.
- WOODBURY, F. W., JR. (I) Pvt., S. A. T. C., M. I. T.
- WRAY, T. S. (I) Pvt., S. A. T. C., M. I. T.
- WYETH, F. H. (VI) Pvt., S. A. T. C., M. I. T.
- YORMARK, JOSEPH (X) Appr. Sea., S. N. T. C., M. I. T.
- YOUNG, E. J. (VI) Appr. Sea., S. N. T. C., M. I. T.
- ZACK, S. I. (XI) Pvt., S. A. T. C., M. I. T.
- ZAPOLSKI, W. W. (I) Pvt., S. A. T. C., M. I. T.
- ZIOCH, E. J., JR. (XV) Pvt., S. A. T. C., M. I. T.
- ZURLO, J. V. (II) Pvt., S. A. T. C., M. I. T.

TECHNOLOGY'S WAR RECORD

1923

- ALDEN, R. H. (III) 2d Q. M., U. S. N. R. F. (A.), 24 July '18.
- ANASTOS, PETER (VI) Corp., Inf. Pvt., Inf., 22 July '18; Corp., 1 Oct. '18. 9th Co. and Co. L, 3d Bn., 151st Depot Brig., Camp Devens, Mass., 22 July—1 Dec. '18.
- BABCOCK, G. C., JR. (II) Sgt., Marine Corps, 25 Apr. '17. 73d Co., 6th Regt., Apr. '17. A. E. F., France and Germany, Oct. '17—Aug. '19. Toulon Sector; Marbache Sector; Aisne Defensive (Belleau Woods Château-Thierry); Aisne-Marne Offensive; St. Mihiel Offensive; Champagne Offensive; Meuse-Argonne Offensive; Army of Occupation, 13 Dec. '18—20 July '19. (Page 174.)
- BARNES, G. E. (I) 2d Lt., C. A. R. C., 6 Feb. '19. Pvt., S. A. T. C., Lehigh University, Pa., 9 Oct. '18; Ft. Monroe, Va., 9 Nov. '18—6 Feb. '19.
- BILLINGS, F. O. (VI) Sgt., F. A. Btry. E, 12th F. A., 2d Div., Columbus, Ohio, 19 Apr. '17. A. E. F., 11 Jan. '18—20 Aug. '19; Arty. Observer, 2d Div. Toulon Sector; Aisne Defensive (Château-Thierry); Aisne-Marne Offensive; Marbache Sector; St. Mihiel Offensive; Champagne Offensive; Meuse-Argonne Offensives. Cited for work at Château-Thierry, and Blanc Mont (Champagne Offensive). (Pages 156 and 173.)
- BOOTH, C. R. (III) Pvt., S. A. T. C., 11 Oct. '18.
- BRADSHAW, AARON, JR. (VI) Capt., C. A. C. U. S. Military Academy, West Point, N. Y., 13 July '13. A. E. F., 8 Aug. '18—18 Aug. '19; Btry. 34, 3d Anti-Aircraft Sector. St. Mihiel Sector; Meuse-Argonne Offensive.
- BRENNAN, H. F. (VI) Sea. 2 cl., U. S. N. R. F., 20 Apr. '17. Transferred to Naval Aviation, July '18.
- BRIGGS, H. W. (XV) Pvt., Inf., S. A. T. C., Norwich University, Vt., 2 Oct.—12 Dec. '18.
- BROWNSKI, B. M. (VI) Sea. 2 cl., U. S. N. R. F., 29 June '18. Naval Operating Base, Hampton Roads, Va., 29 June—Dec. '18.
- BURCHARD, J. E., JR. (IV) Pvt. 1 cl., M. C. Pvt., M. C., 21 Dec. '17; Pvt. 1 cl., Oct. '18. A. E. F., Sept. '18—Mch. '19; Mobile Hosp. No. 100.
- CAMPBELL, R. J. (VII) Pvt., F. A. Westworth Institute, Boston, Mass., 14 Aug. '18. F. A. Off. Tr. Sch., Camp Taylor, Ky., 4 Sept.—9 Dec. '18.
- CARPENTER, T. H., Pvt., S. A. T. C., University of Vermont, 13 Sept.—13 Nov. '18.
- CHAMBERLIN, C. V. (IV) Ensign, U. S. N. R. F. Entered Service, 15 May '17; (E.), 3 cl., 15 Feb. '18; (E.), 2 cl., 1 June; Ensign, 30 Jan. '19. Steam Engr. Sch. and Electrical Sch.; U.S.S. Amphion, Transport Service.
- CHAMPION, L. S. (X) G. M. 1 cl., (Torpedo), U. S. N. R. F. Entered Service, N. N. V., 11 June '17; U.S.S. Indiana; U. S. Naval Torpedo Station; U.S.S. Yarnal (Destroyer No. 143). A. E. F., 29 Nov. '18—30 June '19.
- CHAPIN, B. L. (H) Capt., Inf. Pvt., Off. Tr. Camp, 27 Aug. '17; 2d Off. Tr. Camp, Plattsburg, N. Y., Aug. '17; Camp Stanley, Texas, Dec. '17; Hq., Camp Greene, N. C., Mch. '18—Mch. '19.
- CLAPP, J. K. (VI) Ensign, U. S. N. R. F. (E.), 2 cl., (R.), U. S. N. R. F., 17 Feb. '17; (E.), 1 cl. (R.), Jan. '18; C. E., May; Gunner (R.), Nov.; Ensign, Aug. '19. Naval Radio Station, Boston, Mass., 10 Apr. '17; U.S.S. Maine 22 June; U.S.S. Hannibal, 21 Oct. A. E. F., 3 Nov. '17—3 Sept. '19; Radio Inspector of U. S. vessels touching Plymouth, Eng., June—Dec. '18; experimental work with direction finders; active Radio Repair Officer of Sub-Chaser Detachment. Communication Officer, U.S.S. Hannibal, Dec. '18—Dec. '19.
- CLARK, HOBART, 2d Lt., A. S. A. (R. M. A.) Pvt., M. C., June '17; transferred to A. S., Nov.; 2d Lt., A. S. A., July '18. Ambulance Co. No. 9, June '17; Ground School, Ohio State University and University of Calif.; Field Call, Texas, Brooks Field, Texas, and Garden City, N. Y.
- CONNORS, M. H. (II) Pvt. 1 cl., Inf. Entered Service, 24 Apr. '17; Co. C, 101st M. G. Bn., 26 Div., Niantic, Conn., 25 July '17, A. E. F., 23 Oct. '17—30 Oct. '18. Toul Sector, Chemin des Dames; Aisne-Marne Offensive. Gun shot wounds, left arm and left knee.
- CROSBY, R. R., JR. (I) Appr. Sea., U. S. N. R. F., S. N. T. C.
- DAYS, S. A., M. M., U. S. N. A. E. F., 3 June '17—8 Mch. '19.
- DENNETT, L. B. (XV) 2d Lt., Inf. R. C. Pvt., Inf., 15 Aug. '18; 2d Lt., 30 Nov. '18. Cent. Off. Tr. Sch., Camp Lee, Va., Aug.—Nov. '18.
- DOSCH, E. L., Sea., Naval Unit of S. A. T. C., Madison, Wis., 4 Oct. '18.
- EARLE, A. H. (IV) Sgt., M. T. C. (Reserve Mallet). With French Army, 1 June—1 Oct. '17. A. E. F., 1 Oct. '17—2 June '19. Chemin des Dames, 23-27 Oct. '17; Cambrai Offensive, 25 Nov.—2 Dec. '17; Somme Defensive, 21 Mch.—6 Apr. '18; Aisne Defensive, 27 May—5 June '18; Montdidier-Noyon Defensive, 9-13 June; Champagne-Marne Defensive 15-18 July '18; Aisne-Marne Offensive, 18 July—5 Aug. '18; Somme Offensive, 8 Aug.—17 Sept. '18; Oise-Aisne Offensive 18—29 Sept.; Meuse-Argonne Offensive, 1 Oct.—11 Nov. '18. Lettres de Felicitations, Commandant Doumero, General Pétain.
- EVANS, J. H. (X) Sgt., Inf. Enlisted, 1 June '17; Corp., 13 Oct. '17; Sgt., 3 June '18. 106th Inf., 27th Div., Camp Wadsworth, S. C., Oct. '17. A. E. F., 25 May '18—22 Jan. '19. At Regt. Hq., Battles of Dickebusch Lake and Mt. Kemmel in Belgium July and Aug. '18; in front line in drive on Hindenburg line between Cambrai and St. Quentin 24 Sept.—27 Sept. '18. Wounded by machine gun bullet through right shoulder joint 27 Sept. '18, disabling right arm. Taken prisoner. (Page 194.)
- FERGUSON, H. S. (II) Cadet, U. S. Corps of Cadets, West Point, N. Y.
- FIELD, D. P. (II) Pvt., F. A., 7 May '18. Btry. A, 101st F. A. Chemin des Dames Sector; Aisne-Marne Offensive; St. Mihiel Offensive; Meuse-Argonne Offensive.

REGISTER OF MILITARY RECORDS

- FREEMAN, W. L. (XV) S. A. T. C., Boulder, Colo.
- FULLER, P. D. (VI) C. E., U. S. N. R. F. E. 3cl., (R.), U. S. N. R. F., Harvard Radio School, 27 Apr. '17: E. 2 cl., 1 Apr. '18; E. 1 cl., 1 Oct. '18; C. E., 1 Apr. '19. U.S.S. Bridge, 10 June '17; U.S.S. Cuyana, 21 July '17; Transport Service, Aug. '17—Nov. '18; Atlantic Fleet, Nov. '18—July '19. Two encounters with submarines.
- FURBUSH, G. W., JR., 1st Lt., Inf. Entered Service, 27 May '17. Co. I, 23d Inf., 27 May '17. A. E. F., 15 Jan. '18—14 July '19; 262d M. P. Co., Nov. '18; 261st M. P. Co., May '19. Verdun Sector; Aisne Defensive; Château-Thierry Sector. Wounded at Vaux, 1 July '18. Distinguished Service Cross No. 232: Croix de Guerre with Palm. (Page 174.)
- GIGNILLIAT, F. P., 2d Lt., Inf., Marine Corps. 13 Repl. Bn., Marine Corps; Commissioned at Ft. Sheridan; Camp Taylor, Ky., Brookings, So. Dak., Lincoln, Neb.; Quantico, Va.; Philadelphia Navy Yard.
- GOODALL, A. D. (I) Sgt., Inf., 23d Div. A. E. F., 6 Sept. '17—10 Jan. '19. Aisne Defensive (Château-Thierry); Aisne-Marne Offensive; St. Mihiel Offensive; Champagne Offensive. Wounded in Champagne. (Page 174.)
- GOOGINS, J. C., Candidate, F. A. C. Cent. Off. Tr. Sch., Ft. Monroe, Va., 1 Sept. '18.
- HAILS, T. J. (I) Pvt., S. A. T. C. Pvt., Inf., S. A. T. C., Spring Hill College, Mobile, Ala., 8 Oct. '18.
- HANSON, L. W. (II) Pvt. 1 cl., Engrs. 1st Repl. Regt., Engrs., Washington Barracks, D. C., 12 Aug. '18—29 Jan. '19.
- HART, F. M. (IV) Pvt., S. A. T. C., Bowdoin College, 8 Oct.—10 Dec. '18.
- HAYDEN, H. L. (VI) Corp., M. C. Enlisted, 15 June '17. A. E. F., Mch. '18—May '19; Base Hosp. 116.
- HERSUM, H. D. (I) 2d Lt., Inf. Enlisted, 23 Aug. '17; 2d Lt., 27 Nov. '17. A. E. F., 31 Aug. '18—30 July '19.
- JOE, C. B. (II) Sgt., Inf. Enlisted, 13 July '17; Corp., June '18; Sgt., July '18. Co. K, 23d Inf., 2d Div. A. E. F., 6 Sept. '17—Feb. '19. Verdun Sector; Aisne Defensive (Château-Thierry); St. Mihiel Offensive, Champagne Offensive; Meuse-Argonne Offensive. Wounded by machine gun bullet, 5 Nov. '18. One French Citation; two American Citations; Distinguished Service Cross and Croix de Guerre. (Pages 133, 174 and 200.)
- KELLER, A. M. (VI) Cadet, A. S. Cadet, Ground School, Champaign, Ill., Oct. '18.
- KERSHAW, P. F., Sgt., Inf. In Service, 9th Inf., 5 Sept. '17—1 Aug. '19. Verdun Sector; Aisne Defensive (Château-Thierry); Meuse-Argonne Offensive. Wounded. Croix de Guerre.
- KIRCHNER, O. J. (II) Q. M. 2 cl., U. S. N., 19 Apr. '18. Great Lakes Training Station; Pelham Bay Training Station; Submarine Base, New London, Conn.; Norfolk, Va.; service on destroyers and chasers.
- KLEINBERGER, R. C. (VI) Radio Operator, U. S. N., Aug. '18—Mch. '19.
- KNIGHT, E. P. (XV) Flight Q. M., U. S. N. R. F. (A.). Entered Service, 23 July '17; Great Lakes Naval Air Station, 4 Sept. '17—29 Dec. '18.
- KOCHMAN, E. L. (V) C. Y., U. S. N. R. F. C. C. M. 2 cl., 6 July '18; C. M. 1 cl., U. S. N. R. F. (A.); C. Y. LANGE, F. F. (II) Sgt., A. S. A. Pvt., A. S., 14 Dec. '17; Corp. '18; Sgt. '18. A. E. F., 24 Mch. '18—12 July '19; Aircraft Armament Sect., Hq., A. S., Mch. '18; Asst. Chief Draftsman, Drafting Div., Technical Sect., Apr. '18. Sent to Washington, D. C., as courier with war records, June '19. See Civilian Record.
- LINLEY, N. D. (II) Pvt., S. A. T. C., Brown University, 6 Oct. '18.
- LOVEJOY, L. E. (XV) Pvt., M. C. 22 Ambulance Co., M. C., 2 Aug. '17; Ambulance Co. 328, 1 Oct. '17. A. E. F., England and France, 18 May '18—3 Feb. '19. Ambulance Co. 16, 1 Aug. '18. St. Mihiel Offensive; Oise-Aisne Offensive; Meuse-Argonne Offensive. Croix de Guerre with Bronze Star from Marshal Pétain, 18 Oct. '18. Wounded in Argonne 1 Nov. '18, while acting as a runner. (Page 149.)
- LYMAN, C. F., JR. (XV) C. E., U. S. N. R. F. (R.). Entered Service, 22 Aug. '18. Charlestown Navy Yard, 1 Sept. '18—22 Feb. '19; U.S.S. Mount Vernon, 22 Feb.—18 Aug. '19.
- McMEANS, W. F. (VI) Pvt., S. A. T. C., Purdue University, Oct. '18.
- MANN, N. T. (II, VI) Pvt., Marine Corps. 460th Co., Bn. E, Marine Corps Training Camp, Paris Is., S. C. 20 Oct. '18—28 Feb. '19.
- MARTIN, E. D. (III) 2d Lt., Inf. Bn. Sgt. Maj., 15 May '17; Regtl. Sgt. Maj., Inf., 20 Aug. '17; 2d Lt., 9 July '18. 2d Mass. Inf.; 104th Inf., 26th Div., A. E. F., England and France, 1 Sept. '17—27 Mch. '19; Platoon and Co. Comdr., Army Candidate Sch., Langres, France. Chemin des Dames Sector; Meuse-Argonne Offensive.
- MAURY, D. H., JR. (II) 2d Lt., F. A. Pvt., 28 Sept. '17, 2d Lt., Oct. '18. In France 28 Sept. '17—1 Feb. '19. U. S. Army Ambulance Service with French Armies, S. S. U. 623, 28 Sept. '17; Saumur Arty. Sch., Saumur, France, 1 Aug. '18; 148th F. A., Oct. '18 and evacuated with pneumonia, 30 Nov. '18; attached to 46th Chasseurs, 10th French Army; 61st Div., 6th French Army. Chemin des Dames Offensive: Craonne (Aisne) Sector, Oct.—Nov. '17; Vailly (Aisne) Sector, Dec. '17; Soissons Sector, Jan.—May '18; Aisne Defensive, May—June '18; Baccarat (Vosges) Sector, June '18; Meuse-Argonne Offensive, Oct.—Nov. '18; Army of Occupation, 28 Nov. '18. Cited for Croix de Guerre, 6 June '18. Gassed, 24 June '18. (Page 149.)
- MORAN, J. J. (I) Corp. C. A. C. Pvt., C. A. C., 13 Dec. '17; Corp., 12 Mch. '18. A. E. F., 25 Mch. '18—28 Jan. '19; Hq. Co., 55th C. A. C. Aisne-Marne Offensive; Operations of Vesle and Aisne; Meuse-Argonne Offensive.
- PERLSTEIN, HARRY (XIII) Pvt., M. C. Base Hosp. Detachment, Camp Devens, Mass., 9 Aug. '18—2 June '19.
- PEW, A. E. (X) (E.) 3 cl., U. S. N. (R.). Entered Service, 29 June '17; Crew of U.S.S. Juniata, U. S. N.; Atlantic Coast Patrol, 4th Dist., June—Sept. '17; U. S. Naval Academy, 3 June '18—June '19; practice cruise to Panama.

TECHNOLOGY'S WAR RECORD

- POMYKALA, E. S. (I) Corp., C. A. C. Enlisted, 5 Aug. '17. A. E. F., July '18—Feb. '19. Btry. D, 61st Arty.; Saumur Arty. School, Sept. '18.
- PRATT, P. P. (VI) (E.) 1 cl., U. S. N. Lds. (E.), 26 Apr. '17. Submarines, Coast Patrol; Patrol at Azore Islands.
- PUGSLEY, R. F. (VI) Pvt., C. A., S. A. T. C., Bowdoin College, Oct.—Dec. '18.
- RICHARDSON, PHILIP (XV) S. A. T. C., M. I. T.
- ROSS, G. N. (XV) Pvt., U. S. A. Ambulance. In France, 4 July '17—24 Mch. '19; Driver, American Field Service; transferred to A. E. F., 7 Oct. '17; S. S. U. 638, U. S. A. Ambulance Service with French Army. Verdun '17; Woivre '17; Champagne '17; Defense of Mt. Kemmel (Belgium); Champagne-Marne Defensive; Aisne-Marne Offensive '18; Champagne Offensive '18. Croix de Guerre; American Field Service Medal. (Page 150.)
- RUSSELL, H. F. (II) 2d Lt., A. S. Enlisted, 12 Nov. '17; 141st Aero Sq., A. S. A. E. F., 4 Sept. '18—5 July '19.
- SANBORN, E. L. (XIV) Pvt., S. A. T. C. S. A. T. C., University of Maine, 12 Oct.—8 Dec. '18.
- SATTERLEE, H. Y. (VI) Pvt., 1 cl., Tank C. 317th Repair and Supply Co., Tank C., 21 July '18. A. E. F., France and England, Sept. '18—Apr. '19.
- SCOFIELD, W. D. (II) Ensign, U. S. N. M. M. 2 cl., U. S. N., 9 July '17; M. M. 1 cl., 1 Aug. '18; C. M. M., 30 Aug. '18; Warrant Machinist, 9 Jan. '19; Ensign, 27 Mch. '19. U. S. S. Maumee; U. S. S. Camden; U. S. S. Kittery; Naval Auxiliary Reserve; U. S. N. School of Turbine Engr.; Naval Overseas Transportation Service; U. S. S. Graf Waldersee.
- SHEFFIELD, J. R., JR. (V) C. E., U. S. N. R. F. Entered Service, 2 May '17; Brooklyn Navy Yard, June—Nov. '17; U. S. S. George Washington, transport service, Nov. '17—Mch. '19.
- SHEPARD, A. R. (IV) Pvt., Ambulance Service. Entered Service, 18 May '17. A. E. F., Apr. '18—May '19, S. S. U. 632. On the Marne '18; advance to Meuse, Sept. '18. Wounded, July '18. Croix de Guerre at order of the 117th French Inf.
- SIMPSON, W. S. (III) Sgt., Tank C. Enlisted, 21 May '18; 306 Co., Tank C. A. E. F., 30 Aug. '18—28 Feb. '19. Second Somme Offensive.
- SLAUGHTER, S. M. (I) Pvt., Inf. Entered Service 7 Apr. '17, with 118th Inf. A. E. F., 18 Oct. '17—13 Aug. '18; Co. A, 117th Engrs., 42d Div. Lorraine Sector; Badonvilles, 21 Mch. '18; Toul, 21 Apr. '18. Wounded and gassed at Montigny, France, 21 Apr. '18.
- STERN, A. H. (VI) M. M., U. S. N. R. F. Officers Material School.
- STEWART, B. O. (X) M. M. 2 cl., U. S. N. Entered Service, 16 June '17; Sea. 2 cl., 5 Sept. '17; H. A., 2 cl., 30 Oct. '17; Sea. 2 cl., 25 Sept. '18, M. M. 2 cl., 7 Nov. '18. First Naval Dist.
- STORM, JOHN (XV) Pvt., Marine Corps, 4 Nov. '18.
- STUCKEY, A. R. (I) 2d Lt., A. S. A. (R. M. A.) Pvt. 1 cl., Sig. R. C., 1 Dec. '17; 2d Lt., A. S. A. (R. M. A.), 26 July '18. Enlisted, 13 Sept. '17; Cornell University; Camp Dick. Texas, Love Field, Wilbur Wright Field, Payne Field and Hoboken, N. J.
- TENNEY, O. D. (XV) Gunner 1 cl., C. A. C. Pvt., 20 Apr. '17; Corp., 1 June '18; Sgt. (1st class Gunner), 15 June '18. Repl. Detachment, 6 Aug. '18; 54th Regt., C. A. Brig., 1st Army Corps, 10 Sept. '18. A. E. F., 23 Sept. '18—13 June '19; St. Nazaire Hosp. with influenza, then mumps; served in embarkation service at Embarkation Camp No. 1, St. Nazaire, until 1 June '19.
- WADE, H. M., Pvt., F. A. Entered Service, 5 Aug. '17. A. E. F., 22 Sept. '17—29 Mch. '19; Hq. Co., 101st F. A., 26th Div., transferred to Sch. of Arty., Camp de Souge, Bordeaux.
- WADSWORTH, P. S. (IV) Pvr., S. A. T. C., Colby College.
- WEBB, A. S. (XV) Pvt., A. S. A. U. S. School of Military Aeronautics, Clampaign, Ill., 29 Oct.—30 Nov. '18.
- WEILL, DAVID (II) Acting Corp., S. A. T. C., Columbia University, 1 Oct.—11 Dec. '18. See Civilian Record.
- WERNER, H. D. (XV) Ensign, U. S. N. Sea. 2 cl., May '18, O. M. 3 cl.; Ensign. A. E. F. on U. S. S. Sagna for two months.
- WERTHEIMER, R. R. (XV) Candidate, Inf. Cent. Off. Tr. Sch., Camp Grant, Ill., Oct.—Dec. '18.
- WILKS, H. E. (I) Driver, Canadian F. A., '18. 79th Depot Btry., Canadian F. A., Guy Barracks, Montreal, July '18.
- WILLS, A. K. (VI) Pvt., S. A. T. C., Union College, Oct. '18.
- WRIGHT, J. B., C. M. M., U. S. N. M. M. 2 cl., U. S. N., May '17; M. M. 1 cl., Jan. '18; C. M. M. Apr. '19. Sub-Chaser Detachment No. 2, May '17. A. E. F., Mch. '18—June '19; Submarine Chaser No. 80, Otranto Mobile Barrage. Raid and capture of Durazzo, Oct. '18. (Page 237.)

UNCLASSIFIED STUDENTS

- BARNARD, D. P. (X) Sea. 2 cl., U. S. N. R. F., 19 Apr. '17. Wissahickon Barracks, Sept.—Dec. '18.
- BROMAR, J. D., 1st Lt., Inf. Pvt., Inf., 4 Sept. '16; Sgt., 1 Oct. '17; 2d Lt., 1 June '17; transferred Tank C. Oct. '17; 1st Lt., Oct. '18. Co. E, 333d Inf., 37th Div.; Co. C, 307th Bn., Hv. Tanks, Raleigh, N. C. Oct. '17—12 Dec. '18.
- CARREN, C. C., Pvt., S. A. T. C., 28 Sept. '18.
- CONNOLLY, W. R., Lt.-Col., F. A. Entered Service, 9 Sept. '10; 1st Lt., F. A., Jan. '17; Capt., May '17; Maj., May '18; Lt.-Col., Oct. '18. A. E. F., July '18—June '19, with 11th F. A.

REGISTER OF MILITARY RECORDS

- DESCHAMPS, ANDRÉ, Cadet, Belgian Army. Entered Service, July '15; 1st Btry., 1st Group, Belgian Artillery (long 105 mm. guns). Belgian Front at Houthulst Forest and Dixmude. Divisional Citation.
- HANSON, GEORGE (XII) Lt., Royal Air Force (British). Entered Service, Sept. '17; Flying 1st., Test Pilot, Dispatch.
- JEMMETT, D. M. (VI) Lt., Canadian Engrs. Sapper, 1st Field Co., Canadian Engrs., 8 Aug. '14; Corp., 1 May '15; Sgt., 9 May '15; Lt., 28 May '16. In Canadian service, 8 Aug. '14—22 Jan. '18. Neuve Chapelle, Mch. '15; Ypres, Apr. '15; Festubert, May '15; Guezenby, June '15; Ploegsteert, July '15; Loos, Sept. '15; Sanctuary Wood, June '16; Souchez, Nov. '16. Wounded, 12 Jan. '16, 13 June '16, and 27 Nov. '16. Distinguished Conduct Medal (British). (Page 138.)
- JOHNSON, C. C., Pvt., S. A. T. C., 10 Oct. '18.
- NEUMANN, W. B. (V) Pvt., 1 cl., C. W. S., Sept. '18—Feb. '19.
- RUNDLETT, R. C. (XIV) Petty Officer (Sta. Rating), U. S. N. R. F. Mass. Tr. Unit, M. I. T., 1 Oct. '18.
- SANDERS, F. W., Pvt., Inf. Co. D., S. A. T. C., University of Colorado, Oct. '18.

There are known to have been at least forty other former students of the Institute in the military or naval service of the United States or its allies, but these men in sending in their records, neglected to sign them. At the date of going to press it has been impossible to identify them.

CHAPTER XII

REGISTER OF CIVILIAN RECORDS

In compiling the civilian records of war service, some difficulty has been encountered in determining what activities should be classed as war service. Most American colleges are planning in the publication of their war records to include only such civilians as gave their entire time to the service of the United States Government. A glance at the ensuing pages will demonstrate that to have applied this rule in the case of our own former students would have resulted in the omission of men whose work was so important to the United States and the Allies that it may have been a well nigh decisive factor in determining the outcome of the war. There has probably never been a conflict in which the question of munition supplies and equipment played a more important part, and it will be found that while the Government manufactured much material at its own arsenals, these produced but a small proportion of the total actually used, the remainder being furnished by private firms. It is considered that this fact alone entitles all men engaged in such work to classification as having been engaged in war service. In the administration of the draft law, it will be noted that the United States Government took the attitude that men engaged in such work were performing a duty of a most essential character.

Some question has arisen as to whether or not it is proper to include men engaged in industries less directly connected with the conduct of the war, notably paper manufacture, sugar refining, and the maintenance of public utilities. In such cases the policy has been followed of including those men who stated in their replies that the products were being manufactured for Government use, or that the work performed involved special measures to aid the Government in the conduct of the war. In a similar manner the records of men engaged in agriculture have been included only where their statements indicate that they produced components of the army ration on a sufficient scale to be available to the military forces of the Nation. All men engaged in transportation work under the United States Railroad Administration have been included.

Employees of the Government have in general been included, but those engaged in work of no direct bearing upon the war, for example the valuation of railroads, have been omitted. There were, of course, many who volunteered their services to the Government for various types of work, notably as Liberty Loan and Red Cross workers, special constables and members of the Home Guard. As it has been found that practically every Tech man not in military service was engaged in one or another of these activities, only those records have been included in which the individual served as an official, or in the case of special constabulary and home guards, in which he was actually called out, and saw active service.

Women engaged in Red Cross and similar work have, however, been included.

FACULTY, INSTRUCTING AND ADMINISTRATIVE STAFF

ALDRIN, E. E. See Class of '17.

AYDELOTTE, FRANK, Director, War Issues Courses, Comm. on Education and Special Training, War Dept., Washington, D. C., June '18—Jan. '19, in charge of organization and direction of the course given to soldiers in one hundred and fifty training detachments for mechanics and in five hundred and forty colleges maintaining units of the S. A. T. C. (Page 52.)

BABCOCK, J. B., 3d. See Class of '10.

BARROWS, H. K. See Class of '95.

BARTLETT, D. P. See Class of '86.

BERRY, C. W. See Class of '95.

REGISTER OF CIVILIAN RECORDS

BIGELOW, R. P., Investigator in the drying of fruits and vegetables, Bu. of Chemistry, U. S. Dept. of Agriculture; studied effects of dehydration upon the microscopic structure of a number of common vegetables; assisted in preparation of balloon fabric; devised a method of making very fine threads of rubber. (Page 274.)

BLANCHARD, A. A. See Class of '98.

BOWMAN, H. L. See Class of '14.

BRADLEY, H. C. See Class of '91.

BREED, C. B. See Class of '97.

BREED, S. A. See Class of '93.

BRIGHAM, G. B., JR. See Class of '12.

BROWN, S. E. See Class of '04.

BUGBEE, E. E. See Class of '00.

BURTNER, EVERS. See Class of '15.

BURTON, A. E. U. S. Shipping Bd., Recruiting Service in charge of instruction, Navigation Schools, Recruiting Service, U. S. Shipping Bd., since '17; established schools on Atlantic and Pacific Coasts, Gulf of Mexico and Great Lakes. (Page 30.)

BUSH, VANNEVAR. See Class of '16.

CARLSON, H. N. See Class of '13.

CASTLEMAN, PHILIP. See Class of '05.

CHAMBERLIN, R. R., Radio Inspector and Designer of radio apparatus, Sperry Gyroscope Co., of Brooklyn, N. Y., at Charlestown Navy Yard.

CHENEY, R. B., Aeronautical Draftsman, U. S. Sig. Co., Research Dept., at Aerodynamical Laboratory, M. I. T., and Dayton, Ohio; research work, wind tunnel, M. I. T., testing strength of materials for aero work; Second Asst. Engr., Merchant Marine, Jan. '19.

COWDREY, I. H. See Class of '05.

CROISSANT, D. C., Special Investigator, U. S. Bu. of Efficiency; made phonetic transcription for European languages; Member, Comm. on Public Information; Four Minute Man.

CRONIN, J. T. See Class of '17.

DENKINGER, G. M. See Class of '13.

DEWEY, D. R., Director of Economic Sect. of Information and Education Service, U. S. Dept. of Labor, Washington, D. C., 1 Aug.—31 Dec. '18.

DOLE, M. W. See Class of '04.

EAMES, J. J. See Class of '02.

EMERSON, C. J. See Class of '04.

ERNST, R. H., Supervisor in Dept. of Spagnum Moss Bandages, Red Cross; Member of committee in charge of S. A. T. C., University of Washington.

FALES, D. A. See Class of '14.

FAY, HENRY, Consulting Chemist, Watertown Arsenal, Watertown, Mass., Winchester Repeating Arms Co., New Haven, Conn., U. S. Cartridge Co., Lowell, Mass.; special work at M. I. T., training Naval Aviation Inspectors along metal inspection lines.

FEINSILVER, J. E., assisted Prof. Webster of Clark University in research on artillery cannon, Feb.—Aug. '18.

FORD, H. S., Bursar, M. I. T., in charge of financial and physical side of all war activities at M. I. T. and all govt. contracts with M. I. T. (Page 54.)

FRANKLIN, W. S., Assoc. Physicist, Bu. of Standards, working on airplane and bomb sight problems.

FULLER, C. E. See Class of '92.

GARDNER, H. B. See Class of '17.

GILL, A. H. See Class of '84.

GOODRICH, A. L. See Class of '98.

GOODWIN, H. M. See Class of '90.

GRACEY, F. M., Inst., S. A. T. C.; Inst., Dept. of Drawing, M. I. T.

HALL, W. T. See Class of '95.

HAMILTON, A. L. See Class of '18.

HAMILTON, L. F. See Class of '14.

HAUSER, W. J. See Class of '14.

HAVEN, G. B. See Class of '94.

HAYWARD, H. W. See Class of '96.

HOLMES, A. F. See Class of '04.

HOSMER, G. L. See Class of '97.

TECHNOLOGY'S WAR RECORD

- HOVGAARD, WILLIAM, in charge Research Sect., Bu. of Cons. and Repair, Design Div., Navy Dept., carried on scientific investigation and inspected troop transports for necessary changes in construction, May '17—Sept. '18. (Pages 153 and 231.)
- HOWARD, J. W. See Class of '03.
- HUDSON, R. G. See Class of '07.
- HUMPHREYS, WALTER. See Class of '97.
- JACKSON, D. C., Member of Dist. Exemption Bd. for Boston, July—Dec. '17. See Military Record.
- JONES, W. H. See Class of '09.
- KENISON, ERVIN. See Class of '93.
- KENNELLY, A. E., Civilian Liaison Officer, Sig. C., U. S. A., 6 June '18; special instructions from Chief Signal Officer in regard to duties with A. E. F. U. S. 7 June '18—1 Oct. '18; A. E. F. (France and England) 21 July—15 Sept. '18. (Pages 28 and 220.)
- KNEELAND, F. R., Inst., Dept. of Chemistry, M. I. T., working on development of new poison gases under the C. W. S.
- KNOWLAND, T. M. See Class of '18.
- LAMBRIITH, J. R., gave course in forging to student officers in aviation, M. I. T.
- LANGLEY, E. F., Volunteer, Y. M. C. A., Inst. in French, Naval Aviation Detachment, M. I. T., fall of '17; discharged from Plattsburg to be Inst. in S. A. T. C. at M. I. T., 7 Sept. '18; Inst. in French, School of Military Aeronautics, M. I. T., spring '18; translator of papers in foreign languages, General Solicitor's Office, Washington, D. C., '18. See Military Record.
- LEGAIN, J. H., Inst., Aviation, Naval Aviation Detachment, M. I. T.
- LEWIS, W. K. See Class of '05.
- LIDDELL, W. A. See Class of '16.
- LINDGREN, W., Prof. of Geology, M. I. T., and Inst. S. A. T. C.
- LITTLEFIELD, C. E. See Class of '95.
- LOCKE, C. E. See Class of '96.
- MACINNES, D. A., Director of research in co-operation with the National Research Council at Research Laboratory of Physical Chemistry, M. I. T.
- MCINTYRE, R. D. See Class of '18.
- MACKINNON, J. C. See Class of '13.
- *MACLAURIN, R. C., Pres., M. I. T. Educational Director of the S. A. T. C., under the Educational and Training Section of the War Plans Division of the General Staff; in general charge of all educational work performed by the Institute for the Government during the war. Died, Jan. 15, 1920. (Pages 7 and 50.)
- MARSTON, N. S. See Class of '11.
- MILLER, E. F. See Class of '86.
- MILLER, H. L. See Class of '18.
- MOORE, A. H., entered Sturtevant Blower Works, Readville, Mass., engaged in work on forced draft fans, etc.
- MOORE, F. J., Prof. of Organic Chemistry, M. I. T., conducting experimental chemical work bearing on various military problems.
- MORKS, PEREY, entered Service May '18, spent summer and fall in camps returning to Institute 1 Jan. '19.
- MUELLER, EDWARD, Asst. Prof. of Chemistry, M. I. T., giving summer course during the war in School of Public Health, M. I. T.; working on poison gas defense problems, analysis of T. N. T. as assistant inspector for Italian Govt., '15—'16; consultant with Ord. Dept., in connection with mfg. of explosives, fall '18.
- NORRIS, J. F., in charge Offense Chemical Research, War Gas Investigations, American University Experiment Station, Bu. of Mines, Washington, D. C., June '17—June '18. See Military Record, and pages 253 and 257.
- NORTON, A. E. See Class of '03.
- NORTON, C. L. See Class of '93.
- NORTON, P. W. See Class of '08.
- NOYES, A. A. See Class of '86.
- O'NEILL, J. F. See Class of '02.
- OWEN, GEORGE. See Class of '94.
- PALMER, H. H. See Class of '09.
- PARK, C. R., Inst., Dept. of Chemistry, M. I. T., and Inst. S. A. T. C.
- PEABODY, C. H. See Class of '77.
- PEABODY, DEAN, JR. See Class of '10.
- PEARSON, H. G., associated with various auxiliary organizations connected with the Institute and Alumni Association during the war, especially those dealing with undergraduate activities; member of the Joint Comm. for National Service; member, special comm. on shipyard work for undergraduates; prominent in the organization of Camp Cunningham and the Technology Paris Bureau of the American University Union; during the summer of '17 made a trip to various alumni centers to arouse interest in Technology's war activities. (Pages 48, 62, 64 and 68.)

REGISTER OF CIVILIAN RECORDS

- PERKINS, F. W., Constructor of Apparatus, Dept. of Mechanical Engr., M. I. T., working on experimental apparatus used in development of airplanes and tanks.
- REED, H. F., Asst. Inst., School of Military Aeronautics, M. I. T. See Military Record.
- REED, R. C. See Class of '04.
- RICKER, C. W. See Class of '14.
- ROBBINS, A. G. See Class of '86.
- ROBINSON, A. T., Special Clerk, Bu. of War Risk Ins., Washington, D. C., July '18—Sept. '18. (Page 345.)
- ROBINSON, C. S. See Class of '09.
- ROBINSON, K. C. See Class of '12.
- RUSSELL, A. L. See Class of '18.
- RUSSELL, G. E. See Class of '00.
- SAUVEUR, ALBERT. See Class of '89.
- SCHELL, E. H. See Class of '12.
- SCHROEDER, R. A. See Class of '17.
- SHEA, T. E. See Class of '19.
- SHERRILL, M. S. See Class of '99.
- SHIMER, H. W., Assoc. Prof. of Geology, M. I. T., and Inst., S. A. T. C.
- SLACK, F. H., Inst., Dept. of Biology, M. I. T., War Laboratory Course, teaching diagnostic methods.
- SMITH, H. W. See Class of '97.
- SMITH, L. S. See Class of '00.
- SPEAR, E. B., Consulting Chemist, Research Div., C. W. S.; Assoc. Prof. of Inorganic Chemistry, M. I. T., aiding in cons. of gas masks and activation of carbon for gas masks; joint inventor of anti-dimming compound for eyepieces of gas masks, oxidation of carbon monoxide.
- SPOFFORD, C. M. See Class of '93.
- STRANG, J. M. See Class of '19.
- TAFT, T. H. See Class of '01.
- TALBOT, H. P. See Class of '85.
- THOMPSON, M. DEK. See Class of '98.
- TIMBIE, W. H., Editor in Chief, Vocational Sect., Comm. on Education and Special Training, War Dept., Washington, D. C., in charge of educational methods and material for training detachments.
- TREMER, B. B. See Class of '13.
- TUCKER, D. S., Inst. in Economics and War Aims, S. A. T. C., Tufts College Unit.
- TYLER, H. W. See Class of '84.
- UNDERWOOD, W. L. See Class of '98.
- VENABLE, C. S. See Class of '17.
- WALWORTH, W. F. See Class of '19.
- WAREHAM, C. M. See Class of '16.
- WARREN, C. H., Prof. of Mineralogy, M. I. T., and Inst., S. A. T. C.
- WHITNEY, W. R. See Class of '90.
- WILKES, G. B. See Class of '11.
- WILLIAMS, R. S. See Class of '02.
- WILSON, R. E. See Class of '16.
- WOODMAN, A. G. See Class of '97.
- YEATON, P. O. See Class of '17.

FORMER STUDENTS AND UNDERGRADUATES

1868

- FORBES, ELI (S. and L.) Local Representative, Food Conservation Comm., Lancaster, Mass.; Registrar under Draft Law.
- RICHARDS, R. H. (III) Member of Comm. to study amount of manganese State of Virginia could produce.

1869

- ADAMS, E. D. (Sp.) Director, American Comm. for Devastated France, Inc., New York City.
- BLASHFIELD, E. H., Member of Art Comm. of Liberty Loans; Chairman, Comm. of Pictorial Publicity.
- VEAZIE, WINCHESTER, Food Adm., Hyannisport, Craigville, and Osterville, Mass.; Registrar of Draft Enrollment, Hyannis.

TECHNOLOGY'S WAR RECORD

1870

- BRECK, C. H., placed 700 soldiers, sailors and aviators in suitable places without expense to them after their return to this country.
- CROSS, C. R. (S. and L.) Consultant on govt. problems.
- HERRESHOFF, N. G. (II), Pres., Herreshoff Mfg. Co., Inc., Bristol, R. I., constructing scout boats, patrol boats, pontoon barges and hydro-airplanes. (Page 393.)
- MASON, S. D. (I) Asst. Engr., U. S. Engr. Dept., Ft. Worden, Wash.
- OSGOOD, J. A. See page 354.
- WILLARD, D. W., (II) Inventor of device for protecting vessels from mines and torpedoes. (Page 279.)

1871

- APPLETON, F. H. (Sp.) Maj. Gen., Mass. N. G. (retired); Pres., Veteran Assn. 1st Corps Cadets, later 101st Engrs.; Chairman, Essex Co. Branch, Red Cross.
- DURHAM, C. W. (I) Principal Asst., U. S. Engr. Office, Rock Island, Ill.
- FRENCH, D. C., carried on propaganda work; designed statues for Victory Arch, New York City.
- HALL, F. R., Member of Legal Advisory Bd. for Draft, Boston, Mass.
- HOWE, H. M. (III) Metallurgist, investigated erosion of guns for Naval Consulting Bd.; Civilian Attaché, Ord. Dept., investigating materials for helmets and body armor; Chairman, Engr. Div., National Research Council; Scientific Attache, American Embassy, Paris. (Pages 304 and 306.)
- ROLLINS, E. W. (II) President of the firm of E. H. Rollins & Sons, which placed its sales organization at the Government's disposal for selling Liberty Bonds. About one sixth of the entire series of issues was handled by committees directed by members of the firm's staff. (Page 59.)
- WEAD, C. K., (VIII) Asst. Examiner, Patent Office.

1872

- ALLEN, C. F. (I) Agent for Household Fuel Economy in Mass., Fuel Adm.; lectured on "Coal Saving in Households;" Assoc. Member, Legal Advisory Bd., West Roxbury, Mass. (Page 66.)
- CARPENTER, E. J., Asst. Engr., Corps of Engineers, War Dept., Cincinnati, Ohio.
- HODGE, J. M. (III) Chairman, Home Serv. Sect., Red Cross, Big Stone Gap, Va.
- LOCKE, E. C., built hydroplanes for U. S. Navy Dept. (Pages 244 and 372.)
- STAFFORD, F. H. (I) Member Legal Advisory Bd., Huron Co., Mich.
- UPTON, E. W., Adviser in regard to patrol boats, Navy Dept.; Asst. Physicist, Bu. Standards.
- WALES, W. Q., supplied iron and steel to Govt.

1873

- BROTHERTON, W. E. (V) Pvt., Co. D, 2d. Bn. Cincinnati Home Guard. Active duty during flood of Feb. '18 and strike of policemen and firemen, Apr. '19.
- BROWN, F. N. See Roll of Honor (page 118).
- FELTON, S. M. (I) Adviser and Consulting Engr., Engr. C., June '16; Director General, Military Railways, July '17; Vice-Chairman, Port and Harbor Facilities Comm., U. S. Shipping Bd., Jan. '18; A. E. F., Inspector of transportation facilities, July '18—Jan. '19. Distinguished Service Medal and Commander of Legion of Honor. (Pages 59, 139 and 212.)
- HAINES, W. S. (V) Prof. of Chemistry, Materia Medica and Toxicology, University of Chicago; Member, State Food Comm.
- HAYES, EDMUND, (I) Member of Comm. on Mobilization of Technology's Resources. (Page 59.)
- LUCHARS, ALEXANDER, Trade Commissioner, Dept. of Commerce; abroad, reporting on engr. industries in Europe.
- SHALER, R. A. (I) Engr. of Cons., Cons. Div., Q. M. Dept., Charleston Port Terminal, S. C.
- VERY, F. W. (V). See page 354.
- WILLIAMS, F. H. (V) Volunteer Medical Reserve Corps.

1874

- ARNOTT, J. L. (S. and L.) Asst. to Production Engr. in Marine Equipment, Sup. Div., New England Dist., U. S. Shipping Bd., Emergency Fleet Corp.; Portland, Me., 10 June '18—14 Sept. '18, Boston, Mass., 16 Sept.—15 Jan. '19.
- BARRUS, G. H. (II) Field Engr., Mass. Dept., U. S. Fuel Adm.; Inspector, U. S. Shipping Bd., Emergency Fleet Corp.; Tester of mine-sweepers built by The Foundation Co., for French Govt.
- BLUNT, W. T. (I) Asst. Engr. at Large, War Dept., in charge of harbor work, Chicago, Ill.

REGISTER OF CIVILIAN RECORDS

- DOANE, G. E. (II) Sec., Local Draft Bd., Div. 39, Mass.
ELLIOT, G. T., Member, Legal Advisory Bd., Div. 35, Norwood, Mass.; Supply Sgt. and Sec. Training School Comm., Norwood Military Training School.
EMERSON, J. S. (I) with wife raised \$48,366.23 for Belgian Relief. (Page 302.)
FISH, C. C. R. (V) Mfg. Chemist, Otis Clapp & Son, Inc., Boston, Mass., mfg. supplies for Red Cross and Surgical Units.
HOWARD, C. P. (I) mfg. metal work for railway passenger cars, hardware for ships, tools for airplane parts, 6.1" gun mounts, machine gun equipment and condensers for destroyers.
LAMB, H. W., Member, Ex. Comm., Chairman, Finance Comm., Brookline Branch of Boston Chapter, Red Cross.

1875

- BOWERS, GEORGE (I) Project Engr., later supervising Engr., U. S. Housing Corp., Dept. of Labor, Lowell, Mass.
EDES, W. C. (I) Chairman, Alaskan Engr. Comm.; Member, Bd. of National Defense at Anchorage, Alaska.
GOODALE, C. W. (III) Chairman, Bu. of Safety, Anaconda Copper Mining Co., Butte, Mont.; Asst. Inspector, Bu. of Mines.
HIBBARD, THOMAS (II) Treas. of George Lawley & Son Corp., Dorchester, Mass., builders of submarine chasers, hulls for flying boats and depth bomb gears; altered vessels for patrol service for Navy Dept.
LEWIS, G. W. (IV). See page 354.
LEWIS, WILFRED (I) Consulting Engr., Liberty Motors and Tanks, Ord. Dept., Bridgeport and New Haven, Conn., and Springfield, Mass.
SHOCKLEY, W. H. (III) Member Ex. Comm., War Camp Community Service for Camp Fremont, Calif.
SLADE, A. E. (I) Treas. Laurel Lake Mills, Fall River, Mass., mfg. cotton goods for U. S. Govt.
STODDARD, G. H., Member, Advisory Comm., Food Adm., Boston, Mass.
STANWOOD, J. B. (II) Engr. and Sec., Houston, Stanwood & Gamble Co., Cincinnati, Ohio, designing and constructing lathes for gun work for Ord. Dept. and Navy Dept., and building engines and boilers for Forestry Dept., in France.

1876

- ATWOOD, W. P. (V) Chemist, Mass. Cotton Mills, Lowell, Mass.
BREED, J. B. F. (I) Volunteer Consulting Engr., summer '17; Member of Fuel Conservation Comm., Jefferson Co., Ky. '18-'19.
CODD, W. F., Local Treas., 2d Red Cross Fund.
COPELAND, F. K. (I) Chairman, Ill. Comm. on Industrial Preparedness, Naval Consulting Bd., Sept. '16—May '17; Chairman, Advisory Comm., Naval Consulting Bd., June '17—Dec. '18; Chairman, Comm. on Engr. and Inventions, State Council of Defense, June '17—Dec. '18; Chairman, Ord. Recruiting Comm., Technical Societies of Chicago, Nov.—Dec. '17; Chairman, War Comm., Technical Societies of Chicago, '17-'18.
CROSBY, W. O. (VII) Consulting Geologist for U. S. Army Engrs., Reclamation Service, Aluminum Co. of America and General Electric Co.
du PONT, WILLIAM, Pres. and Chairman of Bd. of Ball Grain Powder Co., mfg. grenades, shells and making fuses, for foreign and U. S. Govts.; Vice-Pres., E. I. du Pont de Nemours & Co. during early war period.
FLETCHER, C. R. (V) organized Lafayette Society of Calif. (Page 353.)
FLETCHER, F. W. (VI) Naval Pilot on Great Lakes, took first three Ford Eagles to salt water.
FREEMAN, J. R. (I) Chairman, National Advisory Comm. for Aeronautics; Member, Advisory Comm., Fire Prevention Bd.; Member, Nat. Research Council. (Pages 306 and 328.)
GILES, J. E., Volunteer Examiner for Aviation Service, Physician at Manhattan Eye, Ear and Throat Hosp.
HAPGOOD, E. E. (IV) Member of firm, Hapgood, Frost & Co., Wellesley, Mass., working on govt. contracts.
HODGDON, F. W. (I) Engr. in charge of dry dock and wharf cons. in Boston Harbor for Comm. on Waterways and Public Lands, Commonwealth of Mass. Advised with army and navy officers regarding use of Commonwealth Pier, location of Victory Plant at Squantum, and Army Supply Base.
JACQUES, W. W. (VIII) Expert for British Admiralty, Anti-Submarine Div.; originated and developed into practical use method and apparatus to locate submarines. (Page 275.)
KENDALL, H. H., Chairman, Liberty Loan Campaign, Newton Centre, Mass.; Director, Local Red Cross Chapter.
KILHAM, A. C. (II) Member, Ex. Comm., Red Cross, Springfield, Mo.
LAVERY, G. L. (II) Mech. Engr. and Mgr., Steel Wheel Dept., West Steel Casting Co., mfr. and delivered to Ord. Dept. and M. T. Div., Q. M. Dept., more than 30,000 cast-steel wheels.
LEWIS, T. J. (II) Chairman, Local Draft Bd. No. 20, Philadelphia, for sixteen months.
MAIN, C. T. (II) Adviser, Cons. Div., U. S. Army; Member, War Dept. Comm. with reference to form of emergency contract for construction work; War Dept. Comm. for investigation of conduct of work on certain project; Member, American Engr. Delegation to France; Member, Bd. of Advisory Engrs. to Fuel Commissioner of Mass.; Member, Special Fuel Comm. of Boston on Public Buildings and Departments. (Pages 225, 315 and 316.)

TECHNOLOGY'S WAR RECORD

- MILLS, A. L. (I) Receiver and General Manager, Fort Smith & Western R. R. Co.
 MORTON, G. A., General Baggage Agent, Traffic Dept., N. Y., N. H. & H. R. R.
 PRINCE, G. T. (I) Dist. Engr., New England, U. S. Housing Corp.
 WOOD, H. B. (I) Asst. Engr., Comm. on Waterways and Public Lands, Commonwealth of Mass., engaged on conservation of water resources, to save coal.

1877

- BALDWIN, G. J. (III) Chairman, Bd. of Directors, American International Shipbuilding Corp., U. S. Shipping Bd., Emergency Fleet Corp. (Pages 59 and 383.)
 FAIRBANKS, W. E. (IV) with Taft Woolen Co., packers and shippers of silk filling to be woven into 100 lb. powder bags for use of artillery.
 HALE, R. A. (I) Principal Asst. Engr., Essex Co., Lawrence, Mass., providing water power for mills.
 HBBARD, H. D. (III) Member, Comm. for conservation of manganese, Bu. of Mines; Chairman, Comm. to deal with non-metallic impurities in steel, Engr. Div., National Research Council. (Page 306.)
 *JAQUES, HERBERT (IV) Chairman, Serbian Relief Comm.; Chairman, Ex. Comm., National Allied Bazaar, Boston, Dec. '16; devoted much time to Belgian Relief. Died, Dec. '16. (Page 301.)
 KITTREDGE, G. W. (I) Chief Engr., N. Y. C. & H. R. R.R.; Member, Budget Comm. for railroads in Eastern Regional Dist. (Page 312.)
 MUDGE, B. C. (I) in Cost and Efficiency Dept., United Shoe Machinery Co., Beverly, Mass., mfg. machinery for repairing shoes in the trenches and for making all kinds of army and civilian shoes.
 PEABODY, C. H. (II) Prof. of Naval Architecture and Marine Engr., M. I. T.; gave intensive courses in Naval Architecture, 25 Apr. '17—Dec. '18; Pres., Academic Bd., U. S. School of Military Aeronautics, 25 June '17—19 Nov. '17; Pres., Academic Bd., Naval Aviation Detachment, 23 July '17; Pres., Academic Bd., School for Inspection Naval Aviation Detachment; in charge of School of U. S. A., Aeronautical Engrs., 6 May, '18—17 Jan. '19. (Pages 11, 23, 26, 36 and 48.)
 SKINNER, F. C., Examiner in Chief, U. S. Patent Office, Washington, D. C.; Member, Comm. to determine what patents should be withheld as likely to convey useful information to the enemy; Mgr., Campaign for Fourth Liberty Loan, U. S. Patent Office.
 SOUTHWORTH, H. C. (III) Chairman, Comm. on Production and Conservation of Food, Stoughton, Mass.
 THAYER, A. W. (I) Inventor, device for automatic firearms, removing recoil (not yet accepted by the Govt). (Page 279.)
 WILLISTON, B. T. (II) Works Mgr., Manning, Maxwell & Moore, Inc., mfg. steam valves and other brass work for allied armies.
 WOOD F. W. (III) Vice-Pres., American International Shipbuilding Corp., U. S. Shipping Bd., Emergency Fleet Corp. (Page 59.)

1878

- ALLBRIGHT, W. B. (V) Member of firm, The Allbright-Neil Co., Chicago, Ill., mfrs. of machinery for mfr. and preparation of food.
 BRADFORD, W. B. (II) Mechanical Draftsman, Construction and Repair Dept., Navy Yard, Boston, Mass.
 BROWN, J. F., Assoc. Member, Legal Advisory Bd., Selective Draft. '18—15 Dec. '19.
 COTTON, LESLIE (II) Assoc. Field Director, Red Cross Convalescent House, Camp Merritt, N. J., 1 July
 FISHER, W. B. (III) lead, silver and copper miner, Nevada.
 HAMLIN, A. D. F. (IV) Inst. in French, S. A. T. C., Columbia University, 23 Sept.—20 Nov. '18; Special Commissioner, Member of Ex. Comm., American Comm. for Relief in the Near East, investigating and reporting on conditions in Constantinople and Asia Minor, May '19—Oct. '19. Cross of George I (Greek). (Page 296.)
 HENSHAW, J. O. (I) Member of Ex. Comm., of Merchant Pig Iron Distributors' Assn.; Treas., Fund for the Relief of Children of Belgium.
 LOVERING, G. G. (I) Deputy Food Commissioner, Texas.
 RACKELMANN, C. S. (I) Assoc. Member, Legal Advisory Bd., Selective Service, Norfolk Co., Mass.
 ROBERTSON, R. A. (II) Mfr. of shrapnel and high explosive shells; Consultant for sundry govt. work.
 ROLLINS, J. W. (I) Pres., Holbrook, Cabot & Rollins Corp., Constructors, Destroyer Plant and Victory Bridge, Squantum, Mass.; wharves for Boston Army Supply Base; wharf and shed for Army Supply Base, New Orleans, La. (Pages 66 and 380.)
 SARGENT, J. W. (II) adjusted marine engines for U. S. Shipping Bd.
 SCHWAMB, PETER (II) designed and developed special airplane wing covering of ply wood; experiments at McCook Field suspended on signing of armistice. (Page 279.)
 SOHIER, W. D., Chairman, Mass. Highway Comm., co-operating with various govt. depts.

1879

- BATCHELDER, J. F. (III) Member, Local Bd., Selective Draft, Hood River Co., Ore.
 CROSBY, ALICE BALLARD (Mrs. W. O.) (V) Worker in War Relief Societies.

REGISTER OF CIVILIAN RECORDS

- CUTLER, E. A. (V) Vice-Pres., A. H. Richardson Lumber Co., Boston, Mass., furnishing lumber for army cantonments, supply bases and navy yards.
- FULLERTON, H. B. (IX) in Secret Service for Treasury, Post Office, Interior, Justice and Agricultural Depts.; Director of Agricultural Development, Long Island R.R. (Page 351.)
- GARRATT, A. V., Collaborator with the Engr. Div., Ord. Dept., in development of anti-aircraft gun sights, aircraft gun sights, firing mechanisms and nitrogen extraction; Fuel Adm., Holliston, Mass.; Chairman, Y. M. C. A. Fund for Holliston.
- GOSS, W. F. M. (II) Member, National Research Council; Member, State Comm. for Ill., Council of National Defense; mfr. railway cars. (Page 306.)
- HASELTINE, W. S., clerical work for Holtzer-Cabot Electric Co., mfg. motors and generators for submarines.
- HOWE, L. P. (I) Field Director with rank of Maj., Red Cross, Portsmouth Naval Dist., charged with care of enlisted men and naval prisoners in connection with family affairs.
- KIMBALL, W. N. (S. M. A.) Agent, Manville Co., Woonsocket, R. I., mfr. cloth for govt. supplies, bandages for Red Cross.
- KNAPP, F. B. (I) Inst. in Mathematics, S. A. T. C. and S. N. T. C., Harvard University.
- LORING, F. R. (VII) Tutor in Naval Subjects.
- MELCHER, G. S., (S. M. A.) Mechanical Engr. and Works Mgr., Mason Regulator Co., Sharon, Mass., furnishing reducing valves and pump regulators for Navy Dept. and locomotives.
- MORGAN, R. H. (IV) Worker in War Relief, London, Eng.
- NICHOLS, G. M. (III) Chairman, Food and Fuel Supply Comm. and Bd. of Registration of Soldiers and Sailors.
- WATT, A. M. (II) Organization work, Inspection Div., Ord. Dept., Washington, New York, Detroit, and Bridgeport after resignation from Engr. R. C. See Military Record.

1880

- BOND, W. C. (S. M. A.) supplied War and Navy Depts. with chronometers and other instruments.
- BROWN, A. N. (II) Prof. and Librarian, U. S. Naval Academy.
- DEAN, J. S. (S. M. A.) Assoc. Member Legal Advisory Bd., Selective Draft.
- FOOTE, O. K. (IV) Field Investigator, Rochester Dist. Ord. Office; Member, Salvage Bd.
- GILBERT, CASS (IV) Architect, Army Supply Base, Brooklyn, N. Y.; buildings for Treasury Dept.; Assoc. Chairman, Div. of Pictorial Publicity, Comm. on Public Information. Chevalier of the Legion of Honor. (Pages 144 and 322.)
- POTTER, E. C. (III) (VI) Trade Expert, War Trade Bd., Washington, D. C., passing on applications for export of tin plate and articles made of tin.
- WHITE, LAURA R. (IV) managed large farm in Ky., producing chiefly corn.

1881

- ALLEN, J. H. (III) Chairman, Finance Comm., Walpole Red Cross; Ex. Comm., Walpole War Fund Assn.
- BRIGGS, F. H. (IX) Chairman, War Trade Comm., National Assn. Importers of Hides and Skins.
- CROCKER, EMMONS (X) Treas., Union Machine Co., and Union Screen Plate Co. of Mass. and Vice-Pres. Union Screen Plate Co., Canada.
- DUFF, JOHN (V) volunteer medical work in connection with Selective Draft Service, Red Cross, and returned soldiers and sailors.
- FRENCH, D. W. (I) Supt., Hackensack Water Co., supplied water to Camp Merritt, Port of Embarkation, Hoboken, N. J., and additional quantity of water to mfg. industries on west shore of Hudson River.
- HILL, A. E. (IV) Supt. in charge of construction of buildings for mfr. of war material and machinery.
- LINDSAY, W. B. (V) on New York City Exemption Bd.
- MOWER, G. A. (II) Managing Director and Chairman of British Companies producing goods for war purposes; Member, Comm., American University Union in Europe, in London.
- MUNYAN, OSCAR, Member, Comm., Conn. State Council of Defense.
- NOBLE, F. C. (I) Agent of Treasury Dept. to issue W. S. S. and Certificates.
- NORRIS, WEBSTER (III) experimented on rubber for military equipment.
- ORDWAY, EVELYN WALTON (Mrs. J. M.) (V) Member, Surgical Dressing Unit, Lynn, Mass.; Worker at M. I. T. War Service Auxiliary.
- PROUTY, I. J. (V) Member, Volunteer Medical Service Corps, Medical Advisory Bd.
- REVERE, W. B. (II) (III) Chairman, Canton Branch, Red Cross.
- ROGERS, ROBERT, Legal Advisory Bd., and Exemption Bd., Div. 35, Canton, Mass.

TECHNOLOGY'S WAR RECORD

- ROSENHEIM, A. F. (IV) Supt., Bu. Yards and Docks, U. S. Navy Dept., New London, Conn., and Charleston, S. C., '18.
- ROSING, W. H. V. (II) in charge of Mech. Dept. of the Globe Seamless Steel Tubes Co., Milwaukee, Wis., mfg. for Navy and for our allies.
- SARGENT, A. C., Pres., C. G. Sargent's Sons Corp., Graniteville, Mass., mfg. machinery for textile and munitions plants working on govt. orders.
- SMITH, J. E. (II) Member, Local Sect., Dept. of Labor, U. S. Employment Service, Dist. Bd., Socorro Co., New Mex.
- STEARNS, G. H. (III) Emergency Fleet Corp., Philadelphia, Pa., '18.
- WALLACE, G. R. (I) Chairman, Fitchburg Comm. on Public Safety, Vice-Chairman Red Cross Chapter.
- WALSH, F. T. (V) Mfr. mordants for khaki clothes.
- WINSLOW, ARTHUR (III) work with U. S. Shipping Bd.

1882

- ADAMS, A. E. (S. M. A.) Skilled Draftsman, Ord. Office, War Dept.
- ADAMS, E. R., Secret Service Agent; helped take over about 500 wood and steel steamers for the U. S. Shipping Bd.
- AYER, W. B. (I) Federal Food Adm. for Ore.; Chairman, 1st Red Cross Campaign.
- DORCHESTER, E. D. (S. M. A.) Vice-Pres., Red Cross Chapter, Velasco, Texas; with Freeport Sulphur Co., producing a war product.
- FAUNCE, GEORGE (III) Pres., Pennsylvania Smelting Co., Carnegie, Pa., producing lead and silver under control of Lead Producers Comm., War Industries Bd.
- HERRICK, R. F. (V) Sales Representative, Utility Equipments, especially "baling presses" for shipment of A. E. F. uniforms.
- HILL, F. E. (IV) Time Keeper, construction of temporary Food Bldg., Apr. '18; Auditor, U. S. Housing Corp., Washington, D. C.
- JENKINS, C. D. (V) Inspector of Gas, Comm. of Mass.; Bd. of Gas and Electric Light Commissions, assisting companies to recover light oils.
- JONES, H. W. (IV) Dist. Vocational Officer, Federal Bd. for Vocational Education; Administrator, work of vocational training for disabled soldiers, sailors and marines in Minn., N. Dak., S. Dak., and Mont.
- KEYES, J. M. (S. M. A.) Chairman, Local Draft Bd.; Member, Local Public Safety Comm.; Retail-price Reporter for U. S. Food Adm., Concord, Mass.
- LEWIS, L. G. (II) Engr., U. S. Housing Corp., Bridgeport, Conn.
- MUNROE, J. P. (III) Vice-Chairman, Federal Bd. for Vocational Education; Member, Comm. on Mobilization of Technology's Resources; Chairman, M. I. T. Comm. for National Service. (Pages 58, 62, 64, 68 and 341.)
- NEAL, B. W. (S. M. A.) Member, Comm. Public Safety, Brookline, Mass.; Chairman, Comm. Employment of Returned Soldiers.
- ROSS, H. F. (III) Pres., Mercantile Wharf Corp., conducting wholesale market with over a hundred tenants handling food products.
- ROSS, J. H. (S. and L.) produced threads and twine for Army and Navy.
- SNOW, W. B. (II) Chairman, Finance Comm., and Member Ex. Comm., Public Safety Comm. of Watertown, Mass. (Page 68.)
- STEVENS, ALICE A. (V) Red Cross and War Relief Worker.
- THOMPSON, E. B. (II) Asst. Engr., Chicago & North Western Railway Corp.
- WARREN, G. E. (II) Engr., United Shoe Machinery Co., Beverly, Mass., developing shoe machinery for the mfr. of army shoes.

1883

- ALEXANDER, WINTHROP (I) applied for commission in Engr. O. R. C., but not accepted.
- BROWNING, J. F., (S. M. A.), Machinist, Burgess Co., Marblehead, Mass.; Inspector and Asst. Supervisor, U. S. Shipping Bd., Boston, Mass.; Constructor and Organizer, Atlantic Loading Co., Amatol, N. J.; Member, Legal Advisory Bd., Selective Draft Service, Atlantic Co., N. J.
- CHASE, H. S. (II) Supervisor, Liberty Loan Accounts, Federal Reserve Bank, 1st Dist. (New England); Consulting Accountant, Federal Trade Comm.; reorganized accounts and methods of aircraft construction at the Metz Co. under contracts with War Dept.; Member, Comm. on Education and Training, War Dept.; Inst., Harvard School of Business Administration, cost accounting for war contracts.
- DRACH, G. W. (IV) Supervising Engr., Cincinnati Dist., Ord. Dept.
- FORAN, G. J. (II) Chairman, American Engr. Service of the Engr. Council; Member, Mayor's Comm. of Defense of New York City; Member of Technical Comms. of U. S. Shipping Bd. and War Industries Bd.; Chairman, Comm. of Engr. Resources of the American Society of Mech. Engrs.

REGISTER OF CIVILIAN RECORDS

- GALE, H. B. (II) Chief Engr., Simplex Electric Heating Co., designing electrical apparatus used by Navy; Chairman for Natick Chapter, Red Cross; Vice-Chairman, United War Work Campaign.
- HUTCHINGS, J. H. (II) Chairman, Comm. Public Safety, Phillipston, N. H.; Food Production and Conservation Comm.; Member, U. S. Fuel Comm. and Local Comm. of Council of National Defense. (Page 307.)
- KINGSBURY, H. W. (V) Chairman, War Loan Organization, War Savings Div., Lackawanna Co., Pa.
- LA FARGE, C. G. (IV) Asst. Gen. Mgr., Bu. of Industrial Housing and Transportation, U. S. Housing Corp., Dept. of Labor.
- LAWTON, M. A. (V) Treas., A. J. Morse & Sons, Inc., Boston, Mass., mfrs. of diving apparatus for Army and Navy.
- MANSFIELD, H. M. (III) Asst. Mgr., Tiger Bay Plant, Palmetto Phosphate Co., producing phosphate rock, forming basis of practically all commercial fertilizers. Chairman Ex. Bd., Ft. Meade Chapter, Amer. Red Cross; Pres., Polk Co. Self-Preservation Loyalty League; Capt., American Protective League, Polk Co., Fla.
- PIKE, CLARA M., Worker for Red Cross, Hampton, N. H.
- STEVENS, E. F. (IV) Hosp. Adviser, overseas hospitals, with Engr. Dept., and Member, Comm. on Army Hosp. Plans appointed by Asst. Sec. of War, designing more efficient units of construction.
- WALKLEY, E. N. (II) Treas. of Peck, Stow & Wilcox Co., Southington, Conn., mfrs. of machines and mechanics tools for Govt.
- WESSON, DAVID (V) Member, Comm. of Fats and Oils, National Research Council. (Page 306.)

1884

- APPLETON, C. B. (II) applied for Commission in Engr. C. and Ord. Dept. but not accepted.
- BARDWELL, F. L. (V) Inst., School of Chemistry, University of Minnesota, '17—'18, S. A. T. C., '18.
- BARTLETT, T. H. (III) Sec., Co. Council of Defense, Nez Perce Co., Idaho; Agent, U. S. Fuel Adm.
- CHASE, R. L. (V) Mgr., U. S. Finishing Co.'s plant, Pawtucket, R. I., mfrs. of khaki uniform cloth and shelter tent cloth for the Govt.
- COBURN, D. L. (V) Guard, German boats held by U. S. Customs Office, Boston, Mass.; Analytical Chemist, for Medical Supply Bu., U. S. A.
- CUSHMAN, S. F. (S. M. A.), Treas., Y. M. C. A. War Fund, and Monson's War Fund, Monson, Mass.
- DU PONT, T. C. (III) S. M. A., Pres. E. J. du Pont de Nemours & Co. until Mch. '15. (Pages 54, 59, 68 and 335.)
- FITCH, A. L. (II) planned Picric Acid Plant to be built at Grand Rapids, Mich.
- FRENCH, G. L. R. (I) General Chairman, Railroad Comm., Liberty Loan Campaigns.
- GILL, A. H. (V) Consultant on quality of lubricating oils and gasolines for Q. M. C. (Page 327.)
- HAMMETT, H. G. (II) Mfr. small parts for locomotives for U. S. R. R. Adm. and for A. E. F.
- HOOKER, H. D. (IV) Asst. Architect, N. Y., N. H. & H. R. R., under U. S. Railroad Adm.
- HORTON, I. C. (II) Engr., Stone & Webster, Hog Island Shipyard, Pa. (Page 391.)
- JOHNSON, F. F. (III) Chairman, Liberty Loan Comm. for Idaho; State Treas., Red Cross in 1st War Drive, later Chapter War Fund Cashier; Member, Capital Issues Comm., 12th Federal Reserve Dist.; Chairman, Securities Comm. of Federal Reserve Bank, Boise, Idaho.
- LULL, G. F. (I) Inventor and mfr., marine glue for Navy and cement for hulls of hydroplanes; Lecturer on adhesives to Naval Squad at M. I. T.
- LUTHER, W. J. (I) Member, Public Safety Comm., Attleboro, Mass.; Chairman, Comm. on Industrial Survey for War Purposes.
- LYLE, D. A. (III) Col., U. S. A. (retired). Member, Bd. of Life-Saving Appliances, U. S. Coast Guard; Navy Dept., 6 Apr. '17—28 Aug. '19.
- MAYNARD, AMY BARNES (Mrs. S. T.) (V) Chairman, American Fund for French Wounded, Northborough, Mass.
- MORSE, P. S. (III) Consulting Metallurgist, Amer. Smelting & Refining Co., New York City, and inspector of metallurgical work at the various plants, promoting the lead-copper industry.
- PURINTON, A. J. (II) Chief, Atlantic City Dist., American Protective League; Member, Ex. Comm., War Camp Community Service; Member, Advisory Bd., Victory Loan and other War Comm.
- RICH, W. J. (III) Member, Primary Examiners' Advisory Comm. U. S. Patent Office, overseeing applications for patents.
- RICHARDS, F. B. (III) Member, Comm. on Iron Ore, Pig Iron and Lake Transportation, Council of National Defense. See Military Record.
- ROBINSON, C. S. (III) Pres., The Youngstown Sheet & Tube Co., mfrs. pig iron, steel, shell steel, pipe sheets, merchant bars and wire for Govt.; Member, Bd. of Directors, Organization for Industrial Preparedness, for State of Ohio, a position which carried with it appointment as Assoc. Member, Naval Consulting Bd., 4 Apr. '16; Member, Advisory Bd. of U. S. Employment Service for Ohio.
- ROBINSON, T. W. (III) Chairman and Member, Bd. for Div. I, N. Dist. of Ill., Selective Service System; Member, Comm. on Housing, Council of National Defense, Washington, D. C. (Pages 59 and 308.)

TECHNOLOGY'S WAR RECORD

- RYDER, J. P. (V) Prof., Physical Education, Drexel Institute, Philadelphia, Pa., in charge of S. A. T. C.
- TYLER, H. W. (V) Special Agent, Dept. of Labor, 27 May—30 Aug. '18; Statistical work for Employment Service, Sept. 10—Oct. '18. (Pages 65, 66, 68 and 340.)
- TYLER, ALICE I. BROWN (Mrs. H. W.) (V) prepared food exhibits for Boston; Volunteer, Food Adm., Washington, D. C., summer '18.
- WALWORTH, J. P., Vice-Pres. and Treas., Walworth Bros., Inc., mfg. khaki shirts for Govt.
- WHITNEY, A. W., Metallurgist, Enterprise Foundry & Machine Works, Bristol, Tenn., mfg. roller bearing mining car wheels.
- WHITNEY, W. M. (II) Mfr., machinery for aircraft production; Chairman, Local Public Safety Comm., Winchendon, Mass.
- 1885
- ACKER, E. O'C. (III) Metallurgist, Bethlehem Steel Co., South Bethlehem, Pa.; Consulting Engr., Tioga Iron & Steel Co.; Consulting Engr., under Navy Dept., Inland Ordnance Co., Bedford, Ohio.
- ALLEN, C. R. (V) Expert in Vocational Training, Asst. Supt. of Training, Supt. of Instructor Training; U. S. Shipping Bd., Emergency Fleet Corp., Education and Training Dept., training expert shipyard mechanics and green men.
- BAKER, DAVID (III) Mgr., Iron & Steel Works, Broken Hill Proprietary Co., Ltd., Newcastle, New South Wales, mfg. rails and shell steel for Australia and Europe.
- BARTLETT, C. H. (I) with Fay, Spofford & Thorndike on Boston Army Supply Base.
- BATES, J. H. S. (II) Consulting Engr., with Guy M. Walker & Sons, for power plants and special work.
- BEDLOW, F. E., Div. Auditor of Receipts, The Southwestern Telegraph & Telephone Co. (Bell System), Dallas, Texas.
- CHOATE, P. C. (V) Metallurgist, research work on zinc, and permanganate of the alkalis.
- COPELAND, B. F., Investigator, National Labor Bd., investigating and settling strikes in U. S.
- DEWSON, E. H. (II) Resident Engr., Westinghouse Air Brake Co., New York City; mfg. brakes for "Pershing" locomotives and freight cars for A. E. F., and six-cylinder, rotary, air-cooled motors for practice planes.
- DODGE, L. L. (II) Asst. Chief Draftsman, U. S. Navy Yard, Boston, Mass.
- FISKE, REDINGTON (III) Mgr., Belgian Relief Comm. '14—autumn '16. See Military Record.
- FRY, T. W. (II) Member, Bd. of Directors, N. H. Naval Consulting Bd.; Local Fuel Administrator; Advisory Member, Local Draft Board, Claremont, N. H.
- HARDING, J. P. (IV) Chairman, Ex. Comm., Red Cross, Longmeadow, Mass.
- HUNT, A. K. (V) Asst., Red Cross, Military Relief Dept., New York City.
- KIMBALL, F. M. (VIII) Mgr., Small Motor Dept., General Electric Co., Lynn, Mass.
- KINGSBURY, F. J., Member, National War Work Council, Y. M. C. A.; Member, Finance Comm., Comm. War Work in Industries; Chairman, New Haven United War Work Campaign; Member, Conn. State Council of Defense; Member, Comm. on Co-ordination of Societies.
- LITCHFIELD, I. W. (II) (VIII) Chairman, Comm. on Mobilization of Technology's Resources, Oct. '16; offered Tech's resources to Govt., Apr. '17, and furnished 500 men of officer material before July '17; Assoc. Director, U. S. Public Service Reserve, July '17; Chief, Clearance Sect., Skilled Labor Sect. and Professional Sect., U. S. Employment Service, Dept. of Labor; left service, 10 Apr. '19. (Pages 57, 58, 59, 62, 64, 66 and 339.)
- LITTLE, A. D. (V) Pres. and General Mgr., Arthur D. Little, Inc., working on development of airplane dopes, acetone by fermentation, smoke filter and many miscellaneous problems; attended weekly conferences, Gas Defense, C. W. S.; miscellaneous work for Army Intelligence Branch, Navy Dept. and Food Adm. (Page 396.)
- LUFKIN, E. C. (II) Vice-Chairman, National Petroleum War Service Comm., co-operating with Oil Div., Fuel Adm., supplying U. S. and Allies with fuel oil, gasoline, kerosene and lubricating oils. (Pages 59 and 312.)
- LULL, R. S., (S. M. A.), Inst., Seamanship, Yale University Training Unit, '17—'18; Capt. of Station, Summer Camp; Head, Dept. of Seamanship, U. S. Naval Unit, Yale University, Oct. '18.
- MAGOUN, H. A. (III) Sr. Vice-Pres., New York Shipbuilding Corp., which produced 160,000 tons shipping during the war.
- MEARS, H. A., (S. M. A.), detective work for U. S. Marshal, Boston, Mass.
- MORSE, EVERETT (III) Member, Priorities Comm., Oct. '17; Chief, Brass Sect., War Industries Bd., Washington, D. C., Apr. '18.
- NEWELL, F. H. (III) Vice-Chairman, Comm. on Reconstruction Problems, National Research Council; Collector of data on Asiatic Turkey for members of Peace Comm.
- NUTE, J. E. (I) Member, Fall River Preparedness Comm.; Member, Ex. Comm., Fall River Chapter, Red Cross; Chairman, 2d Red Cross War Fund; Mass. Dist. Chairman, United War Work Fund; Chairman, Fall River Comm., War Camp Community Service; Chairman, Teams Comm., Red Triangle Campaign.
- NYE, G. H. (I) Member, Local Comm. of 100, New Bedford, Mass.; Member, Legal Advisory Bd., Selective Draft; Chairman of Draft, Registration Precinct.
- POWER, P. W., (S. M. A.), Mech. Engr., Pittsfield Works, General Electric Co., mfg. Gaines time fuses and 3"x5" brass cases.

REGISTER OF CIVILIAN RECORDS

- PRATT, H. G. (VI) Pres. and Treas., Samson Cordage Works, Boston, Mass., producing govt. supplies; Ward Chairman, Liberty Loan Comm. of Newton, Mass.
- REBER, L. E. (II) Assoc. Director, Public Reserve, U. S. Labor Dept., Aug. '17—Mch. '18; Director, Education and Training, U. S. Shipping Bd., Emergency Fleet Corp., Apr. '18—15 Dec. '18; Director, Engineering and Trade Education, Y. M. C. A. Army Educational Comm., France, Dec. '18—July '19 (Educational Comm. of Y. M. C. A., became Army Educational Corps, Apr. '19); Director, College of Engineering, A. E. F. University at Beanne, France. Decorated by French Govt. and made an Officer of the Académie. (Pages 154, 225 and 344.)
- RICHARDS, C. R. (II) Organizer, Unit of S. A. T. C., Cooper Union, New York City; classes in Gas Engine Practice, Marine Engine Practice, Motor Vehicle Construction and Testing, for training technicians to enter govt. service.
- ROBERTSON, N. G. (III) Mfr., shovels for Ry. Engrs. and for Q. M. Dept.
- SISE, LYMAN, Member, Local Draft Bd., Medford, Mass. See Military Record.
- STEELE, G. F. (II) (VIII) District Mgr., Power and Mining Dept., General Electric Co., Boston, Mass.; assisting mfrs. on all lines of war work to get needed electrical apparatus.
- TALBOT, H. P. (V) Member of the Advisory Bd. of Chemists, Bu. of Mines (later taken over by the War Dept.); Consulting Chemist, Bu. of Mines (later to the War Dept.); one of two to formulate courses of instruction in chemistry for use throughout the country in connection with the S. A. T. C., Washington, D. C.
- VANIER, G. P. (III) Chief Chemist, Bethlehem Steel Co., Bethlehem, Pa.
- WILLIAMS, H. J. (V) Fuel Engr., American Agricultural Chemical Co., Chestnut Hill, Mass.
- WILLIAMS, SIDNEY (I) with Union Pacific R. R.
- WITHERSPOON, MIRIAM F. (V) Member, Mayor's Comm. on Social Hygiene, Worcester, Mass.
- WORTHINGTON, ERASTUS (I) Chairman, Food Production and Conservation Comm., Dedham and Westwood, Mass.

1886

- ATWOOD, F. M. (S. M. A.) Sec., Comm. Public Safety; Chairman, Four Minute Men; Explosive Licensing Agent, Bristol Co., Mass.
- BALL, J. T. (S. M. A.) Designer and Supt., Sturtevant Aeroplane Plant, Jamaica Plain, Mass.
- BARTLETT, D. P. (VI) Prof. of Mathematics, M. I. T. and Inst., S. A. T. C.
- BARUS, ANNIE HOWES (Mrs. C.) (V) Chairman, College Women's Sect., R. I. Div., National Council of Women, Dept. of Food Conservation.
- BATCHELLER, B. C. (II) Chief of Canister Dept., Long Island Laboratory, Gas Defense Plant, C. W. S.
- BENSON, H. P. (S. M. A.) Chief Inspector, Sugar Div., U. S. Food Adm., Mass.
- BLUNT, M. M. (II) Draftsman, Navy Yard, Boston, Mass., drafting in ship work and fitting up German ships for transports.
- BORDEN, R. P. (II) Ex. Sec., War Service Comm., American Hosp. Assn.; Member, Hosp. Comm., Medical Sect., Council of National Defense, Oct. '17—Aug. '18; Consultant, General Staff, Hosp. Matters. See Military Record.
- BURGESS, J. K. (II) Assoc. Member, Legal Advisory Bd., Selective Draft.
- BUSWELL, W. H., Supt., Archibald Wheel Co., Lawrence, Mass., mfg. artillery wheels for Ord. Dept.
- CAMPBELL, W. K. (S. M. A.) Constructor, condensers for war vessels at the Fore River Ship Yard, Quincy, Mass.
- CHADBOURN, W. H. (III) General Inspector in Belgium, Comm. for Relief in Belgium, '15; Chief Delegate and Representative at German Army Hq., '15; returned to U. S. A. on account of ill health; Vice-Pres., and Sales Mgr., New Home Sewing Machine Co., mfg. 155 mm. shells and primers.
- COBB, L. R. (I) Concrete Designing Engr., Westinghouse, Church, Kerr & Co., constructing buildings for Aetna Explosives Co. and Dominion Arsenal, Canada; Winchester Repeating Arms Co., New Haven, Conn.; Savage Arms Co., Utica, N. Y.; Driggs-Seabury Ordnance Co., Sharon, Pa.; Hydraulic Pressed Steel Co., Cleveland, Ohio; Wright-Martin Aircraft Construction Co., New Brunswick, N. J.; Rock Island Arsenal, Rock Island, Ill.; Nitrate Plant No. 2, Muscle Shoals, Ala.; Embarkation Camp, Newport News, Va.; Power Plant, Newport, R. I.; Power Plant Extension, Solvent Recovery Bldg., Indian Head, Md.
- CUTTER, L. F. (I) Designer, Monks & Johnson, Architects and Engrs.; Computer, Fay, Spofford & Thorndike, Consulting Engrs.; assisted in design of Victory Plant, Squantum, Mass.; plant for assembling anti-aircraft guns, New Britain, Conn.; concrete bldgs. and wharves, U. S. Army Supply Base, Boston, Mass.
- DAWSON, W. F. (S. M. A.) Designer of direct current generators for ship lighting; Electrical Engr., in charge Turbine Dept., General Electric Co., West Lynn, Mass.
- DOOLITTLE, O. S. (V) New York Representative, Semet-Solvay Co., Syracuse, N. Y., furnishing picric acid, T. N. T. and chemicals to the U. S. and allied govts.
- FOGG, A. G. (I) Designer, industrial plants for mfr. of materials for war purposes.
- FOSS, F. E. (I) Director, Physical Testing Laboratory, Metallurgical Sect., Inspection Div., Ord. Dept., Pittsburgh, Pa.

TECHNOLOGY'S WAR RECORD

- GAMWELL, R. G., Member, Ex. Comm., Home Service Sect., Red Cross, Bellingham, Wash.; Advisory Bd., War Camp Community Service; Deputy Food Commissioner, State of Washington; Director, Liberty Loan Campaign, Wheaton Co., Wash.
- GRUSH, C. E. (S. M. A.) Member, United Shoe Machinery Corp., producing machinery for mfr. of boots and shoes for U. S. Govt.
- HARGITT, C. W., Chairman, Local Comm., National Research Council; Teacher, Sanitation and Hygiene, S. A. T. C., Syracuse University. (Page 306.)
- HATHAWAY, D. L. K. (H) Designer, Warren Steam Pump Co., mfg. pumps for battleships, torpedo boats and destroyers, for Govt.
- HEATH, F. A., Food Adm., Bell Co., Ky.
- INGALLS, W. R. (III) Consulting Engr., Bu. of Mines; Member, Advisory Bd., Fuel Adm., Bu. of Conservation; assisted in recruiting the 27th Engrs. and raising funds for auxiliary association to help it. (Page 313.)
- LOCKE, F. L. (I) Pres., Y. M. C. A., Boston, Mass.; Member, Ex. Comm., Boston War Work Council, Y. M. C. A.; Member, Ex. Comm., United Service Club; Member, Ex. Comm., Mayor's Comm. on returned Soldiers.
- LORD, A. W. (IV) Spec. Investigator, U. S. Housing Corp., Sections of New England, N. Y., N. J., Pa. and Ohio.
- LOW, W. H. (V) Chemist, The Cudahy Packing Co., So. Omaha, Neb., charged with inspecting food products and increasing production of glycerine.
- MAXIM, H. P. (S. M. A.) Pres., Maxim Silencer Co., Hartford, Conn., mfg. Maxim silencers, bayonet scabbard metal parts, gas grenades and detonator thimbles. (Page 59.)
- MERRIAM, H. P. (VI) Engr. and Supt., Continental Iron Works, Brooklyn, N. Y., mfg. heavy welded work, corrugated furnaces for internal furnace boilers, digesters, stills, water and steam drums for cruisers and torpedo boats.
- MILLER, E. F. (II) Secret and confidential work for the U. S. Engrs. and for Ord. Dept.; Chief Instructor in Engr. for Merchant Marine under U. S. Shipping Bd. (Pages 30, 34, 279 and 281.)
- NOBLE, T. A., (H) Asst. Chief, Minute Men Branch, Amer. Protective League, Yakima Co., Wash.
- NOYES, A. A. (V) Consulting Chemist, Nitrate Div. of Ord. Dept., War Dept., consulting and directing researches on nitrate fixation; Member of Ex. Bd., and Acting Chairman of National Research Council, May—Sept. '18 (acting as Dept. of Science and Research of Council of National Defense); Chairman of Nitrate Comm., War Dept., preparing reports on nitrate supply to Sec. of War; in Boston and Washington, June '16—Sept. '18, in London and Paris, Oct. '18—Dec. '18. (Page 304.)
- OSGOOD, E. G. (S. M. A.) Industrial Sec., War Work Council, Y. M. C. A., Watertown Arsenal, Mass.
- PIERCE, E. L. (II) Member, Comm. on Coal Production, Council of National Defense, Washington, D. C.; Pres., The Solvay Process Co., Syracuse, N. Y., largest mfr. in U. S. of alkali in forms of caustic soda and soda ash; Vice-Pres., Semet-Solvay Co., one of the largest mfr. of high explosives. (Pages 308 and 363.)
- PROCTOR, T. F. (V) Maker of radium dials for soldiers' watches.
- RICHARDSON, C. F. (H) Assoc. Member, Legal Advisory Bd., Selective Draft.
- RICKER, G. A. (I) Dist. Engr., Portland Cement Assn., Washington, D. C.; unofficial supervisor all cement concrete work by Govt. in States of Md. and Va.
- ROBBINS, A. G. (I) Prof. Topographical Engr., M. I. T.; Inst. in Navigation for the U. S. Shipping Bd. (Page 31.)
- RUSSELL, L. K. (V) prepared classified records of chemists, National Research Council. (Page 306.)
- SMITH, J. W. (I) Chairman, Military Engr. Comm., New York, Jan. '16, to promote military engineering education by means of lectures by army officers; Comm. recruited the 1st Engrs., afterwards the 11th and assisted War Dept. in recruiting for other units for technical and semi-technical work.
- SMITH, S. F. (VI) Principal Examiner, U. S. Patent Office, Washington, D. C.; drafted and secured introduction of bills in Senate and House of Representatives for preventing disclosure or publication of important inventions filed in the Patent Office, which were duly passed and approved; Official Censor for all foreign mail from Patent Office. (Page 281.)
- STOUGHTON, A. B. (II) Member, Legal Advisory Bd., Local Bd., Div. 45, Philadelphia, Pa., Selective Draft.
- TAPPAN, J. W., Medical Officer in charge, U. S. Public Health Service, Ft. Bliss, Texas; Director, Red Cross Unit No. 5, El Paso.
- TAYLOR, W. M. (II) Pres. and General Mgr., Chandler & Taylor Co., Indianapolis, Ind., mfg. steam engines, gun lathes, ship plates, and iron castings for govt. work.
- WOOLDRIDGE, N. S. (S. M. A.) Chairman, inspection and training, Boy Scout Work in W. S. S. and Liberty Bond Campaigns, Pittsburgh, Pa.

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- ADAMS, H. S. (I) Member, Comm. Public Safety, Arlington, Mass.; Consulting Engr. on work at coal wharves at Portland, Me., and Boston, Mass., perfecting them for increased output and for coaling war vessels.
- ARMINGTON, G. A. (II) Pres., Euclid Crane & Hoist Co., Euclid, Ohio, mfg. cranes and hoists.
- BARBOUR, F. F. (VI) Sales Auditor, U. S. Shipping Bd., Emergency Fleet Corp.
- BRAJNERD, W. H. (IV) Head, Specification Dept., Monks & Johnson, designing concrete shipbuilding yards, Wilmington, N. C., and addition to Bethlehem Shipbuilding Yard, Sparrow's Point, Md.

REGISTER OF CIVILIAN RECORDS

- BRETT, FRANKLIN (II) Expert Camp Planner, Cons. Div., Camp Planning Sect., War Dept.; Chairman, Comm. on Military Affairs, Public Safety Comm., Duxbury, Mass.
- BRYANT, H. F. (I) Consulting Engr., Hood Rubber Co., Watertown, Mass.
- BURGESS, GELETT (I) Author of articles on preparedness, anti-German propaganda, and Liberty Loans; originator of "Liberty Ball" which rolled from Buffalo to New York at the time of the Third Liberty Loan Campaign; Paris Correspondent for "Collier's," '14-'16. (Page 352.)
- CARTER, N. P. A. (II) Chairman, Public Safety Comm.; Food Adm.; Chairman, Four Minute Men; Director, Red Cross Home Service Work, Chicopee, Mass.
- COLE, WINTHROP (II) Mech. Engr., Bu. of Steam Engr., U. S. Naval Engr. Experiment Station, Annapolis, Md., in charge of tests of pumps, pump governors, boiler attachments, automatic devices and packings.
- CURRIER, A. D., Legal Adviser, Selective Service System, Evanston, Ill.
- CURTIS, R. E. (II) Engr., Power Station design, Bethlehem Loading Co.
- CUSHING, W. C. (I) Chief Engr., Pennsylvania Lines West of Pittsburgh, under U. S. Railroad Adm. (Page 312.)
- DAY, SARAH L. (V) Worker for Red Cross.
- DOUGLAS, W. B. (II) Lt. in Command, 2d Div., Naval Bn., Conn. Home Guard, Middletown, Conn., 5 Apr. '17-'25 July '17; Vice-Pres., W. & B. Douglas Co., mfg. pumps, lathes for turning and boring 6" shells, fair-leaders, deck fittings, hawse pipes and chocks; Chairman, Shipping Comm., Middlesex Chapter, Red Cross.
- ELZNER, A. O. (IV) Sec., Soldiers and Sailors Club, under War Camp Community Service; Member, Advisory Comm., Military Training Camp Assoc. of U. S., and Examining Comm., Cincinnati, Ohio.
- FARWELL, LYMAN (IV) Military Supervisor, Dist. No. 10, Draft Board, Los Angeles, Calif.
- FOX, T. A. (IV) Member, Draft Bd. No. 4, Selective Service, Boston.
- GARDNER, C. H. (III) Surg., U. S. Public Health Service, in charge Bexar County Civil Sn. Dist.; Extra-Cantonment Sanitation, San Antonio, Texas.
- GERRISH, W. P., Inventor, instrumental method of determining azimuth, by direct mechanical means, from observation of the Pole Star, without computation or reduction, which invention he gave to the Government as a contribution to the war; Designer, "Polaris Attachment," incorporating this method, adopted as standard equipment for orienting heavy artillery.
- GREEN, LONSDALE, designed and superintended Smokeless Powder Plant for Cleveland Clipp Iron Co.; Supt., Phosphorus Plant for Govt., Fairmount, W. Va.
- HOBERT, J. C. (II) Pres., The Triumph Electric & Ice Machine Co., Cincinnati, Ohio, furnishing noiseless generator sets and motors for Navy, and installing small refrigerating sets for Emergency Fleet Corp.; Chairman, Ex. Comm., Region No. 10, War Resources and Conversion Div., War Industries Bd.
- HOUGHTON, N. H. (VII) U. S. Volunteer Medical Corps.
- HUSSEY, O. S. (II) Civilian Mech. Engr., production of heavy arty., Ord. Dept.
- JONES, E. A. (II) Pres., E. D. Jones & Sons Co., mfg. machinery for mills making bank note and Liberty Bond paper, and for explosive plants.
- KELLOGG, T. M. (IV) Member of firm, Rankin, Kellogg & Crane, Architects, Philadelphia, Pa.; designed and completed housing operation for Govt. in Philadelphia. (Page 337.)
- KENDALL, F. A. (IV) Research Asst., Bu. of Research, War Trade Bd.
- KIRKHAM, GUY (IV) Chairman, Div. 2, Local Draft Bd., Selective Service, Central Comm. of Registration, Springfield, Mass.
- LANE, B. C. (V) served on local Registration Bd., Precinct 8, Ward 23, Selective Service, Boston, Mass.; Treas., The Allen Lane Co., producing army blankets and army suitings.
- LEE, J. C. (V) Member, Wellesley Comm. on Public Safety and Food Conservation Comm.
- LIVERMORE, W. D. (V) Chief Chemist, The American Woolen Co., Lawrence, Mass., mfg. woolen goods for Govt.
- McCOLL, ARCHIBALD (II) Secretary and Asst. to the Pres., Nova Scotia Steel & Coal Co., Ltd., which manufactured first shrapnel shells produced in Canada, and also high explosive shells. (Page 366.)
- MOODY, W. S. (VI) Chief Engr., Transformer Dept., General Electric Co., Schenectady, N. Y., mfg. \$25,000,000 worth of static transformers for govt. work or contributing industries.
- PARK, W. L. (IV) with Fay, Spofford & Thorndike on Boston Army Supply Base.
- PATTERSON, G. W. (VI) Prof., Engr. Mechanics, University of Michigan, R. O. T. C., S. A. T. C. and S. N. T. C.
- PULLMAN, F. A. (S. M. A.) Sec., Red Cross; Member, Legal Advisory Bd., Selective Service; Supervisor of registration for Rumford Mill, International Paper Co., Andover, Mass.; agent for licensing users of explosives, Bu. of Mines.
- SARGENT, W. D. (II) Pres., Bayonne Steel Casting Co.; Director and Member, Ex. Comm., American Brake Shoe & Foundry Co.; Director, International Motor Truck Corp. and American Steel Foundries, mfg. steel castings for war ships and naval gun mounts, shells and howitzers and motor trucks for engines.
- SCHMIDT, R. E. (IV) Hosp. Commissioner, Cons. Div., Q. M. C.; one of commission of three to select existing buildings of fire-proof construction for conversion into army hospitals.

TECHNOLOGY'S WAR RECORD

- SCHWARZ, F. H. (II) Plant Supt., Worsted Dept., Pacific Mills, Lawrence, Mass., producing olive drab khaki cloth for Govt.
- SEARS W. T. (II) with Niles-Bement-Pond Co., Montclair, N. J., estimating output, designing fixtures and making layouts of shell and gun producing plants.
- SHORTHALL, J. L. (IV) Member, Legal Advisory Bd., Selective Service, Div. No. 50, Chicago, Ill.; Chairman, Bd. of Instruction under Selective Service, Div. 50.
- SMITH, H. E. (V) Asst. Engr., U. S. Railroad Adm., inspecting and testing all material used in construction of cars and locomotives purchased by Railroad Adm.
- SYLVESTER, G. E. (I) General Mgr., Barbour Coal & Coke Co., Catoosa, Tenn.
- TANTOR, GILES (VI) Pvt., First Plattsburg Provisional Inf. Regt., Co. B, Aug. '15; 1st Lt., Plattsburg Provisional Inf. Regt., Co. I, Aug. '16. Assoc. Member, Legal Advisory Bd., Selective Service, Cambridge, Mass. (Page 4.)
- TAPPAN, D. H. S. (I) Registrar, Mitchell Co. (N. C.) Draft Bds.
- THOMAS, E. G. (II) Mech. Engr., Toledo Scale Co., producing scales used in munition manufacture.
- THOMAS, F. A. (I) Assoc. Member, Legal Advisory Bd., Pawtucket, R. I.
- THOMAS, W. R. (II) Gen. Supt., E. D. Jones & Sons Co., Pittsfield, Mass., mfg. tug boat engines, parts of submarine listening devices and machinery for powder mills.
- THOMPSON, W. S. (I) Div. Engr., Pennsylvania R. R.
- TWOMBLY, A. H. (II) Chief Engr., Designing and Constructing Engr., Camp Shelby, Miss., for Twombly & Hemphill; also designer of floats for mine field between Norway and Scotland, 240 miles long. (Page 236.)
- WHITNEY, GRANGER (III) Asst., Coke Bu., U. S. Fuel Adm., inspecting bee hive coke ovens and studying costs and prices for coke. (Page 312.)
- WHITNEY, W. A. (I) in charge of local United War Work and Red Cross drives; local fuel administrator.

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- ALLEN, G. S., Medical Member, Local Bd., No. 1. Lawrence, Mass. See Military Record.
- ATKINSON, WILLIAM (IV) Treas., The Vacuum Co., Somerville, Mass., fumigating foreign cotton.
- BALDWIN, J. C. T. (VI) Corp., Newton Constabulary, Apr. '17—July '19; Director, Shipping Dept., Metropolitan Chapter (Boston) Red Cross.
- BIGELOW, H. F. (IV) Member, M. I. T. War Service Auxiliary Comm., Work at Chelsea Naval Hosp.; Worker at Convalescent Home, Lancaster, Mass.
- BIRD, H. S. (V) Chemist, Royal Baking Powder Co., Brooklyn, N. Y.
- BLOOD, W. H., JR. (VI) Asst. to Pres., American International Shipbuilding Corp., Hog Island, Pa. (Page 391.)
- BRADLEE, A. T. (II) Member, War Production Comm., National Council of American Cotton Mfrs.; Counsellor on Cotton Industry, War Trade Bd.; Member, Sub-Comm. of Cotton Advisory Comm., Textile Alliance, Inc.
- BROWN, C. L. (III) Consulting Engr., Marine Camp, Quantico, Va.; Sr. Highway Engr., Bu. Public Roads, Washington, D. C.
- CARLETON, E. S. (IV) Chairman, Comm. on Motor Cars and Trucks, Mass. Comm. of Public Safety, Leicester, Mass.
- CHANDLER, H. S. (IV) 1st Asst. Camoufleur, Marine Camouflage, U. S. Shipping Bd., Emergency Fleet Corp. 2d Dist., N. Y.
- CHILD, STEPHEN (I) Dist. Town Planner, Dept. of Labor, Bu. of Housing and Transportation, U. S. Housing Corp., 24 Apr. '18—1 July '19.
- DEAN, LUTHER (I) Civil Engr., U. S. Shipping Bd., Emergency Fleet Corp., at wood ship yards.
- DEARBORN, W. L. (I) Resident Engr., U. S. Shipping Bd., Emergency Fleet Corp., Norfolk, Va., supervising construction of Twin Graving Docks.
- ELLIS, F. E. (II) Mgr., Road Cons., Camp Devens, Mass., '17—'18.
- FOJUE, T. A. (II) General Mech. Supt., U. S. Railroad Adm., Minneapolis, Minn. (Minneapolis, St. Paul & Sault Ste Marie R. R.; Duluth, South Shore & Atlantic R. R.; Mineral Range R. R.; Lake Superior Terminal & Transfer R. R.; Copper Range R. R.)
- HALL, W. A., Chemical Engr., Paris, France.
- HAMPTON, ALFRED (I) Director of Internment, Dept. of Labor.
- HANDY, J. O. (III) (V) Consulting Chemist, reporting to Col. Bogert and Col. Burrell, C. W. S.; attended Plattsburg Camp, Aug. '16.
- HAZEN, ALLEN (V) Supervising Engr., Q. M. Dept., water supply and sewerage for army cantonment, Camp Dix; entered service, June '17.
- HEATH, G. L. (V) Chemist and Metallurgist, Smelting Works, Calumet & Hecla Mining Co., Hubbell, Mich., producing high grade copper for the Allies, a heavy tonnage for cartridge metal and millions of pounds of billets for shell bands and tubing; N. C. O., Mich. State Troops, '17—'18; Member, Houghton Co. War Relief League.

REGISTER OF CIVILIAN RECORDS

- HODGKINS, H. G. (IV) Architect, Hammond Plant, Ord. Dept., Standard Steel Car Co., Hammond, Ind.
- HOLMAN, G. U. G. (VI) Member, Publicity Comm., Liberty Loan Campaign, Conn.
- HOLMES, C. L. (II) Dist. Store Keeper, Portland, Ore., Supply Div., U. S. Shipping Bd., Emergency Fleet Corp.
- HOLTON, E. C. (V) Chief Chemist, Sherwin-Williams Co., producing varnish for airplanes, preservatives and camouflage paint for submarines, warships, cantonments and railway equipment; Adviser to members of War Industries Bd. (Page 396.)
- HYAMIS, ISABEL F. (V) Member, Mass. Div., Council National Defense, served on Education and Food Comms.; Director, Red Cross Unit, Dorchester, Mass. (Page 307.)
- JARECKI, ALEXANDER (II) Member, War Service Comm.; Member, Pa. Council National Defense. (Page 307.)
- JONES, A. W. (VI) Mgr., International General Electric Co., Schenectady, N. Y.
- MAY, E. S., Member, U. S. Govt., Wool Valuation Comm.
- MEANS, F. C. (III) Member, Kentucky State Council, Boyd Co., Council of National Defense; Campaign Manager, Red Cross, and Boyd Co. War Chest. (Page 307.)
- MOORE, F. A. (IV) Chairman, War Savings Comm.; Branch Developer, Red Cross, Larchmont, N. J.
- MORSE, W. A. (S. M. A.) Asst. General Works Mgr., Otis Elevator Co., Tool Designing Dept., Yonkers, N. Y., designing machine tools and small tools and fixtures for mfr. of recuperator for 240 mm. howitzer.
- MUHLENBERG, F. H. (II) Assoc. Member, Legal Advisory Bd., Selective Service, Berks Co., Pa.; Designer, buildings for Carpenter Steel Co., Reading, Pa., producing war materials.
- NEILER, S. G. (II) Supervising Engr., Heating and Boiler Plants, Camp Custer; Supervising Engr., Electrical Work, Denver General Hosp.
- NEWELL, J. P. (I) Chairman, Community Labor Bd., Dept. of Labor, Portland, Ore.
- NICKERSON, A. D. (I) Asst. Supt., Procurement Div., with Cons. Q. M., Camp Eustis, Va., May '18—May '19.
- PARKER, W. B. (IV) Draftsman and Expediting Engr., Cons. Div., War Dept., Washington, D. C.
- PERKINS, D. H. (IV) Asst. Supervisor of Design, Dept. of Housing and Transportation, U. S. Shipping Bd. Emergency Fleet Corp., Philadelphia, Pa., July '18—Feb. '19.
- PIERCE, H. F. (I) Resident Engr., Housing Dept., U. S. Shipping Bd., Emergency Fleet Corp., Bath, Me., Project No. 13.
- QUIGLEY, E. P. (II) Examiner of land titles, Birmingham, Ala., watching for alien enemies' ownership of land.
- REDD, B. S. (II) Inspector of Machinery, War Dept., U. S. Govt. Explosive Plant "C," Nitro, W. Va., 3 May '18—1 Dec. '18.
- ROBB, RUSSELL, (VI) Member, Mass., Comm. of Public Safety; Member of firm, Stone & Webster, Boston, Mass., constructors of arsenals, munition plants, and cantonments. (Page 377.)
- SAVAGE, A. C. (S. M. A.) Designing Engr., General Electric Co., Schenectady, N. Y., designing submarine, battle cruiser and cargo boat control equipment.
- SAWYER, A. H. (II) Pres. of companies producing war materials.
- SJÖSTRÖM, I. L. (I) Pres., Manufacturers Machine Co., North Andover, Mass.
- STEVENS, J. F. (S. M. A.) Brig. Gen., Mass. National Guard. Col., 25 July '17; Brig. Gen., 22 Apr. '19. Adj. Gen. of Mass., 27 July '17; Ex-officio Member, Mass. Public Safety Comm.; Member, Mass. Emergency Public Health Comm., '18; Member, Mass. Soldiers and Sailors Comm., '19.
- STONE, C. A. (VI) Pres., American International Corp.; Member of firm of Stone & Webster, Boston, Mass., constructors of arsenals, munition plants and cantonments. (Page 57, 377 and 382.)
- SULLY, J. M. (III) General Mgr., Chino Copper Co.; Vice-Pres., and Managing Director, Gallup American Coal Co., Hurley, N. Mex.; Member, New Mexico State Council of Defense.
- TALBOT, MARION (IX) Dean of Women and Prof. of Household Adm., University of Chicago; gave course in Conservation of Food.
- WEBSTER, E. S. (VI) Member, Chestnut Hill Home Guard, '16—'18; Chairman Boston Metropolitan 2d Red Cross War Fund; Member, Ex. Comm., Y. M. C. A.; Member of firm, Stone & Webster, constructors for Rock Island Arsenal, Picatinny Arsenal, Watertown Arsenal, Shipyard, Hog Island, Pa. and other govt. work. (Pages 59 and 377.)
- WELD, F. C. (V) Sgt., Mass. State Guard; Member local fuel comm.; Member Public Safety Comm.; Member of all Liberty Loan Committees, Lowell, Mass.
- WHALEY, LILLIAN CURRIER (Mrs. W. B.), Worker for M. I. T. War Service Auxiliary and Red Cross; attended three months' course in War Bacteriology at M. I. T.

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- ANDREWS, C. O., Member, Local Exemption Bd., No. 2, Selective Draft, and Ex. Comm., all Liberty Loan Campaigns; Chairman, Lawrence (Mass.) Branch, Red Cross, and Red Cross Membership Campaign; Treas., Lawrence Red Triangle Y. M. C. A. War Work Council.
- ASHTON, A. C. (II) Treas. and General Mgr., The Ashton Valve Co., Cambridge, Mass., mfg. pop safety valves, pressure gages and other steam specialties for equipment of U. S. Navy, Emergency Fleet Corp., locomotives, and war power plants.

TECHNOLOGY'S WAR RECORD

- ATHERTON, WALTER (IV) Inst., Surveying and Mapping, Harvard College, S. A. T. C.; Chairman, Architects Comm., Y. M. C. A. War Fund; Sec., Campaign Comm., War Fund 101st Engrs., A. E. F.; Sec., Campaign Fund, 1st Motor C., Mass. State Guard.
- BASFORD, G. M. (II) Pres., Locomotive Feed Water Heater Co., New York City, mfg. feed water heaters, evaporators, boiler feed pumps and distillers for 550 ships for U. S. Shipping Bd.
- BATES, S. G. (II) Chairman, Greenup Co. (Ky.) Chapter, Red Cross.
- BIXBY, W. G. (II) Pres., S. M. Bixby & Co., Brooklyn, N. Y., mfg. shoe polish for Govt.
- BLISS, Z. W. (II) State Council of Defense, Engr. Comm., Providence, R. I.
- BORDEN, C. N. (II) Treas., Richard Borden Mfg. Co., Fall River, Mass., mfg. cloth for hospital gauze; Member, Fall River Cotton Mfrs. Comm.
- BRAINERD, F. H. (III) Assayer, lead and zinc ores, Benton, Wis.
- BRIDGES, L. W. (II) Mech. Engr., Charles H. Tenney & Co., Boston, Mass.; designing and building plant for recovering toluol for Malden and Melrose Gas Light Co.; Adviser for power house design and plant layout for U. S. Sulphate Nitrate Plant Co., Perryville, Md.; Asst. on yard layout for Shipbuilding and Marine Railway, Newcomp Plant, Hampton, Va.
- BROWNE, S. ALICE, Chairman, Smith College Club of Newport, R. I., raising money for Smith College Relief Work in France.
- CRABTREE, FRED (V) Prof. of Metallurgy, Carnegie Inst. of Technology, Pittsburgh, Pa.; taught successive groups of Engrs. of Tests, Ord. Dept.
- CRANE, E. A. (IV) Member of firm, Rankin, Kellogg & Crane, Architects, Philadelphia, Pa.; designed and completed housing operation for Govt. in Philadelphia. (Page 337.)
- CROSBY, C. F., Supervising Inspector, overhead piping, Squantum Destroyer Plant; Inspector of work on sprinkler system and fire protection; Asst. Engr. with Fay, Spofford & Thorndike, Army Supply Base, Boston, Mass.
- CROSSMAN, F. A. (II) engaged in lumbering in Canada, Maine, and N. H.; opened coal mines in Kentucky.
- CROWNINSHIELD, B. B. (Sp.) offered services to Theodore Roosevelt but not accepted on account of age. Shipbuilder for the U. S. Shipping Bd., since 23 Feb. '18. See Military Record.
- DAME, F. L. (VI) Expert, Facilities Div., U. S. War Industries Bd.
- DAWSON, C. W. (IV) Special Representative of Finance Dept., in charge seven southwestern states, 1st War Camp Community Service Campaign; Organizer of 2d Campaign; in charge of United War Work Campaign, Colorado; as Governor of the District of the International Assn. of Rotary Clubs, Mo., Okla. and Kan., formed Comm. on War Camp Activities.
- DEETZ, C. H. (I) Cartographer, U. S. Coast and Geodetic Survey; Author of Manuals for the Army in France, to assist those engaged in compiling military maps in the War Zone.
- DURFEE, NATHAN (II) Vice-Pres., American Printing Co., Fall River, Mass., mfg. cotton cloths for Govt.; Vice-Chairman, Liberty Loan Comm. and Comm. on Preparedness, American Protective Assn.; Member, Finance Comm., Fall River Chapter, Red Cross; Officer, Auxiliary Police Battalion.
- FORD, L. A. (IV) Architect, Air Nitrates Corp., Muscle Shoals, Ala., for Ord. Dept.
- FRENCH, HOLLIS (VI) Member of firm, Hollis French & Allen Hubbard, Boston, Mass.; designed munitions factories and extensive works for corporations mfg. machinery for Govt., large central station for an Army Supply Base, and heating and sprinkling systems of the Base itself.
- FULLER, A. B. (S. M. A.) Mech. Draftsman, General Electric Co., Schenectady, N. Y., producing large water wheel driven generators.
- GAHAGAN, W. H. (I) Contracting Engr. working on construction of railroad siding and coal trestle, Curtiss Aeroplane Co., Buffalo, N. Y.; thirty barges and lighters for Cons. Div., War Dept.; substitute track facilities, Brooklyn Heights R. R., for U. S. Army Base, Brooklyn; excavation for the construction of coal trestle for U. S. N., Bayonne, N. J.; dredging for Army Base, Brooklyn; dredging for Shipyard of Submarine Boat Co., Port Newark, N. J.; contract for construction of ten steel ocean-going tugs for U. S. Shipping Bd., Emergency Fleet Corp.
- GILSON, H. Y. (S. M. A.) Chairman, Public Safety Comm., War Savings Society, State Protection and Recruiting Comm., Windham, N. H.; Worker in shipyard, Newington, N. H. and in a munitions factory, Lowell, Mass.
- GLEASON, HALL (II) Draftsman, N. Y., N. H. & H. R. R., working on design of freight yards and additional terminal facilities and location of additional tracks from Boston to Providence.
- GOODALE, J. L., Teacher, Harvard Medical School, giving instruction to candidates for M. C.
- GOODWILLIE, FRANK (IV) Deputy Chief of Production, U. S. Shipping Bd., Emergency Fleet Corp., Washington, D. C., and Philadelphia, Pa., in connection with housing facilities at shipyards throughout the U. S. (Page 335.)
- HARRINGTON, E. M. (V) Chief of Cost Div., E. I. du Pont de Nemours & Co. (Page 359.)
- HART, F. R. (VI) Member, Capital Issues Comm., Federal Reserve Dist. No. 1. (Page 64.)
- HOBART, H. M. (VI) Chairman, Welding Research Sub-Comm., Welding Comm., Emergency Fleet Corp.; Member, Sub-Comm., National Research Council.
- HOBBS, F. W. (II) Pres., Arlington Mills, mfg. worsted meltons, and yarns for stocking mfrs.

REGISTER OF CIVILIAN RECORDS

- HOWARD, HENRY (V) Director, Recruiting Service, U. S. Shipping Bd. (Pages 30, 329 and 393.)
- HUNT, H. H. (VI) Management Div. of Stone & Webster, Boston, Mass. (Page 377.)
- KILHAM, W. H. (IV) Architect, U. S. Shipping Bd., Emergency Fleet Corp., Project No. 5, Atlantic Heights, N. H.; Member, Comm. of Rules for War Housing.
- LAUDER, G. B. (VI) in charge receiving and shipping materials, N. H. Chapter, Red Cross, Mch. '17—Oct. '17; Office Mgr., Hq., War Savings Organization in N.H., '18.
- MARSH, E. P. (II) Asst. Registrar, Draft, Springfield, Mass.; Efficiency Engr., The Stanley Works, New Britain, Conn., mfg. wrought steel hardware and cold rolled strip steel, for Govt.; Assoc. Member, Legal Advisory Bds., No. 1 and No. 2, New Britain, Conn.
- MAURAN, J. L. (IV) Chairman, Civilian Relief Comm.; Purchasing Comm. for Hosp. Unit No. 21; Member, Ex. Comm., St. Louis Chapter, Red Cross; Member, Operatives Personnel and Adviser to the Chief, St. Louis Branch, Military Intelligence. (Pages 59 and 316.)
- MERRILL, W. H. (VI) Chairman, Ex. Comm. of Fire Prevention Sect., War Industries Bd., Washington, D. C., concerned with fire prevention in privately owned munition plants.
- MILLARD, JULIAN (IV) Treas., Hollidaysburg (Pa.) Branch, Red Cross.
- MOTT, W. E. (I) Chairman, Faculty Comm. on War Courses and Vocational Training; Director, A Sect., S. A. T. C., Carnegie Inst. of Technology, Pittsburgh, Pa.
- NASH, F. C. (II) Town Chairman, 1st Liberty Loan Campaign and War Savings Stamps Drive, Cherryville, Me.; Treas., Local Red Cross; Assoc. Member, Legal Advisory Bd., Selective Draft.
- ORROK, G. A. (V) Consulting Engr., Bu. of Mines, Dept. of the Interior, representing Helium Comm., since 15 Apr. '18; with Thomas E. Murray, designing Smokeless Powder Plant "C" at Nitro, W. Va., 1 Jan. '18—1 Aug. '18.
- PICKERING, O. W. (V) built and operated complete small factory to demonstrate the mfg. of celluloid for the du Pont Co.; in charge of construction and operation of a Cottrell Precipitator for recovery of nitric acid from fumes, product used for the mfr. of ammonium nitrate for war work.
- PIERCE, F. L. (II) Member, Ex. Comm., Fire Prevention Sect., War Industries Bd., 5 Apr. '18—Nov. '18; Chairman, Local Bd., Selective Service, Div. No. 1, City of Providence, R. I., 20 Dec. '17—spring '19.
- PIETSCH, T. W. (IV) Inst. in French to officers, 316th Regiment, Camp Meade, Md.
- RANKIN, J. H. (IV) Member of firm, Rankin, Kellogg & Crane, Architects, Philadelphia, Pa.; designed and completed housing operation for Govt. in Philadelphia; designed large housing project at Eddystone, Pa. (Page 337.)
- ROUND, G. W. (VI) General Supt., Interurban and Street Rys., Tacoma, Wash., handling soldiers to and from Camp Lewis.
- SANBORN, F. E. (II) appointed as civilian, Temporary Curative Workshop Inst., Educational Dept., Div. of Physical Reconstruction, U. S. Medical Department at large; assigned to duty at Walter Reed General Hosp., Washington, D. C., 16 July '18; temporary duty at Carlisle, Pa., 25 July—31 July '18; Walter Reed General Hosp., 1 Aug.—14 Aug.; Chief of Educational Service, Carlisle, Pa., 15 Aug.—29 Aug. '18. See Military Record.
- SAUVEUR, ALBERT (III) Technical Expert, French Ministry of Munitions, and Director, Div. of Metallurgy, Technical Sect., A. S. A. E. F., Aug. '17—Jan. '19.
- SMITH, MURRAY (IV) Draftsman, U. S. Navy Yard, Boston, Mass.
- SMITH, W. L. (VI) Prof., Electrical Engr., Northeastern College, Boston, Mass.; Sec., National Assn. of Electrical Inspectors; Member of Electrical Council of Underwriters Laboratories doing considerable amount of work directly related to the war.
- SMYTHE, F. A. (I) Pres., The Thew Automatic Shovel Co., producing shovels and cranes for the A. E. F.; Treas., Technology Clubs Associated, Washington Office; Chairman, Finance Comm., War Work Council, Elyria, Ohio. (Pages 59, 64 and 66.)
- SPALDING, KALUDY (V) with J. G. White Engineering Corp. (under Aircraft Div., U. S. A.), expediting production of aircraft materials intended to go to A. E. F.; investigator, clothing frauds, New York City, Jan.—Feb. '18.
- TRUESDELL, A. E. (VI) Mgr., Vermaco Lime Co., a semi-essential industry, St. Albans, Vt.
- UNDERHILL, W. W. (II) Treas., Stone-Underhill Heating & Ventilating Co., Boston, Mass.
- WHITE, J. B. (II) Personnel Supervisor, Receiving and Distributing Sect., Bu. of War Risk Insurance, Washington, D. C.
- WILLISTON, A. L. (II) Educational Director for New England of National Army Training Detachments, training artisans and military technicians, under Comm. on Education and Special Training, War Dept. Organized work at University of Maine, N. H. State College, Dartmouth College, University of Vermont, Tufts College, Franklin Union, Wentworth Institute, Newton and Springfield Technical High Schools, R. I. State College, and Brown University; Director of Intensive Training, Military and Naval Units at Wentworth Institute, Boston, Mass., including 101st Engrs., Harvard R. O. T. C. Military Engrs., and Naval Engrs. Training Detail; Principal, Wentworth Institute; Director, Boston School of Occupational Therapy.

TECHNOLOGY'S WAR RECORD

WILSON, B. F., JR. (III) Chairman, Local Red Cross Chapter, Four Minute Men, Fourth and Fifth Liberty Loan Campaigns, Armenian-Syrian Relief work, and Alabama Memorial Comms. of Lyles, Ala.; Chief Registrar, Selective Draft; Member, Co. War Labor Bd.; Supt., Shelby Iron Co., Shelby, Ala.

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- ALDEN, C. H. (IV) Architect and Supervisor, Building Construction, Staff of Cons. Q. M., Camp Lewis, Wash., 5 July '17—16 Oct. '17. See Military Record and page 90.
- BABB, C. C. (I) Chairman, Granite Falls (N. C.), Red Cross Auxiliary; Organized and directed W. S. S., Red Cross and Liberty Loan Drives.
- BARTLETT, SPAULDING (V) Treas., S. Slater & Sons, Inc., Webster, Mass., mfg. woollens for Army and Navy and cotton goods for Army; Member, Advisory Comm. (Woollens), Council of National Defense; Member, Ex. Comm., Webster Dudley Dist., four Liberty Loan Drives, Red Cross, Y. M. C. A., K. of C., and Jewish Relief Drives.
- BEASOM, C. B. (II) Engr., and Inspector, Victory Mutual Fire Insurance Co., Boston, Mass., inspecting and recommending safeguards at munition plants.
- BORDEN, J. E. (I) Ship Draftsman, Bu. of Cons. and Repair, Submarine Div., U. S. N., '17—'19.
- BURLEY, H. B. (I) Pres., Treas., and Mgr., Boston Insulated Wire & Cable Co., mfg. insulated wire for war purposes.
- CLARK, JAMES, JR. (VI) Mfr. dynamos, motors, and electrically driven machine tools for Ord. Dept. and Navy Dept.
- CARMALT, L. J. (I) Asst. to Chief Engr., N. Y., N. H. & H. R. R., doing construction work under large war work program.
- CARNEY, J. A. (V) Supt. of Shops, C. B. & Q. R.R., Aurora, Ill.; Member, Ex. Comm., Aurora Chapter, Red Cross. (Page 312.)
- CHASE, F. L. (I) Mgr., Gas Dept., Lone Star Gas Co., Dallas, Texas, providing natural gas for helium gas plants for U. S. Govt., Petrolia and Ft. Worth, Texas.
- CODMAN, T. N. (V) Head of Packing Dept., American Fund for French Wounded, New England Branch, from Jan. '16.
- COLLINS, W. H. (V) Asst. Mgr., U. S. Finishing Co., Norwich, Conn., mfg. venetian linings for army uniforms and cloth for slickers and rain coats.
- DE LANCEY, DARRAGH (II) Chairman, 2d Dist. Bd., Selective Service, State of Conn., Provost Marshal General's Office, War Dept.; Chief, Industrial Furlough Sect., Adj. Gen. Dept.; Director, Industrial Relations, U. S. Shipping Bd., Washington, D. C.
- DEWOLF, J. O. (II) Engr. and Architect for industrial plants, especially plate rolling mill, Simonds Mfg. Co., Lockport, N. Y., for rolling light armor plate for field gun carriages.
- DU PONT, P. S. (V) Pres., E. I. du Pont de Nemours Co., Wilmington, Del., since Mch. '15. (Pages 54, 144 and 355.)
- EMERSON, G. C. (I) Engr. Member, Comm. of Chamber of Commerce, Boston, Mass., investigating and drawing contracts and specifications for disposal of refuse at Camp Devens; intelligence work with the local officers of the Dept. of Justice.
- FENN, W. H. (I) Pres., Artillery Fuse Co., Wilmington, Del., mfg. fuses for trench warfare.
- FULLER, G. W. (V) Consulting Engr., Comm. on Emergency Construction, Munition Bd., Council of National Defense; Consulting Engr., Cons. Div., U. S. A.; Consulting Sn. Engr., U. S. Public Health Service; Supervising Engr., design and construction of Housing Project No. 380, U. S. Housing Corp., Dept. of Labor; Delegate, Franco-American Engr. Congress, Paris, France, to consider the reconstruction of France. (Page 315.)
- GILMORE, G. L. (II) Production Expert on Textiles, Boston Ord. Depot, 24 Apr.—31 July '17; Q. M. Depot, Boston, 12 Aug. '19; Treas., 1st Lexington (Mass.) Y. M. C. A. Drive; Pres., Lexington War Chest; abroad with European Cotton Comm., 15 May—22 July '19. (Page 66.)
- GOODWIN, H. M. (VIII) Prof. of Physics and Electrochemistry, M. I. T.; Inst., S. A. T. C.; research work for Govt. under direction of National Research Council.
- GREENLAW, F. M. (VI) Pres., Bd. of Health in Civilian Zone adjacent to Zone of Military and Naval Stations, co-operating with U. S. Public Health Service; volunteer service on Military Census and on Registration of Drafted Men.
- HALE, G. E. (VIII) Chairman, Div. of Foreign Relations, National Research Council, '16—30 Apr. '19, now Honorary Chairman; Member, Ex. Comm., representing U. S. in International Research Council; nearly three years in Washington and two trips abroad organizing and conducting work of Research Council. (Pages 6, 57 and 304.)
- HART, SUSAN J. (VII) Worker for Red Cross.
- HAZARD, SCHUYLER (I) Auditor for Govt. and Engr. (without rank) for Contractor, Highway Construction for War Dept., under Q. M. C., in state of Va.; Camp Morrison, Naval Base No. 2, Div. No. 3, Lee Hall, Va., and Yorktown, Va. Released from service, 8 Oct. '19.
- HILLS, L. M. (IX) Manufactured Army Supplies.

REGISTER OF CIVILIAN RECORDS

- HORTON, S. E. (II) Chief, Local Div., American Protective League, Hartford Co., Conn.; Member of War Service Comm., in connection with increased production of lathe chucks for War and Navy Depts.
- HOWE, LOIS L. (IV) Architect, designed and furnished Boston Army and Navy Canteen; planned alterations and furnishings for Suffrage Coffee House for Enlisted Men, Camp Devens, Mass., and the East Boston Canteen, Y. M. C. A., under auspices of U. S. Shipping Bd.; Worker, M. I. T. War Service Auxiliary and French Relief Association.
- KENDALL, F. H. (I) Member, Bd. of Food Conservation, Belmont, Mass.; Chairman, Finance Comm.
- LENFEST, B. A. (II) Head of Instruction Dept., Wright Aircraft Corp., Long Island City.
- McDONALD, F. A. (I) Chief Engr. and General Supt., National Mining Co., Carnegie, Pa., producing bituminous coal for steam and gas purposes.
- MACGREGOR, WALLACE (V) Owner and Operator lead ore treatment plant.
- METCALF, FREDERICK (II) Mfr., windlasses and deck machinery for merchant and naval vessels for British and U. S. Navy; furnished designs for automatic valve control for trawling winches, used in sweeping for mines and submarines.
- MOLINEUX, MARIE A. (VII) in charge '17-'18 of Pathological Laboratory, Lynn Hosp.; worker for the Red Cross and other relief organizations.
- MOODY, F. C. (II) Draftsman, Stone & Webster, Boston, Mass., on plans for Rock Island Arsenal, and shops in France; Transportation Engr., The White Co., Cleveland, Ohio, mfg. war trucks.
- NOYES, H. L. (I) Designer and builder of plants and extensions, furnaces and equipment for mfr. of ferro-silicon and other ferro-alloys which were essential to the Govt.
- PACKARD, G. A. (III) increased production of lead.
- PARIS, ADDIE EDWARDS (Mrs. L. J.) (V) Red Cross Worker.
- PENNEL, H. B. (IV) Capt., Mass. State Guard, May '17; organized, drilled, fully uniformed and equipped entire company of 865 men from private subscriptions.
- POLAND, W. B. (F) Volunteer Member, Comm., for Relief in Belgium, Aug. '14; Asst. Director, Brussels; Director, in charge, relief work in occupied territories of Belgium and Northern France, Dec. '15; Director, Comm. for Relief in Belgium, London, England, July '16; Director for Europe, Comm. for Relief in Belgium and Northern France, U. S. Food Adm., Apr. '17; Engr. Member, American Military Mission to Armenia, under Maj. Gen. James G. Harbord, Aug.-Nov. '19. Chevalier, Legion of Honor, 3 July '17; Officer of the Legion of Honor, 7 Jan. '19; Commander of the Order of Leopold, 3 Feb. '19; presented Medal by City of Lille, May '19; Companion of the British Empire, Oct. '19 (Pages 143 and 301.)
- RICE, C. W. (VI) Member, Engr. Comm., Council of National Defense; catalogued over 10,000 professional engineers, specialists and men of science. (Page 308.)
- RICHMOND, K. C. (II) with Production Dept. of Builders Iron Foundry, producing ship engines for U. S. Shipping Bd. and gun mounts for Ord. Dept.
- RIPLEY, W. Z. (I) Administrator of Labor Standards, Q. M. C., War Department, Apr. '18—Jan. '19; Chairman, National Adjustment Comm., U. S. Shipping Bd., 1 Jan. '19.
- ROBINSON, EDWARD (II) Prof. in charge of Mechanical School for Drafted Men, University of Vermont, Burlington, Vt.
- ROGERS, A. H. (III) Consulting Mining Engr., Bu. of Mines, examining manganese mines since Nov. '17.
- ROYCE, F. P. (VF) with Stone & Webster, Boston, Mass.; Chairman, Liberty Loan Comm., Dedham, Mass.; Chairman, Dedham Branch, Red Cross; Chairman, Dedham Fuel Adm.
- SEELER, E. V. (IV) Architect, U. S. Ord. Dept., Philadelphia Dist., Ord. Office Bldgs. and U. S. Housing Corp., Dept. of Labor, Industrial Housing Project No. 2947, Ridley Park, Pa.
- SHERMAN, C. W. (F) 1st Lt., Mass. State Guard; Engr., U. S. Housing Corp.; took leading part in raising a company of Mass. State Guard.
- SLATER, H. C. (II) Estimator and Recorder, Main Office of E. I. du Pont de Nemours & Co., Wilmington, Del.
- STEARNS, E. B. (I) Mgr., Electric Furnace Dept., American Bridge Co., New York City, handling general sales work for bridges and buildings for Govt. purposes; mfg. and placing on market of electric furnace for making high-grade steel castings and high-grade steels, for thin armor plate, automobile parts, submarine parts, and large field guns.
- SWANTON, F. W. (VI) 1st Asst. Examiner, U. S. Patent Office.
- TOWNE, J. H. (IX) Sec., The Yale & Towne Mfg. Co., New York, mfg. fuses for British Govt. and war materials for U. S. Govt.
- TUTTLE, H. C. (V) Chemist, E. I. du Pont de Nemours & Co., Wilmington, Del., mfg. acids and heavy chemicals, pigments and dry colors.
- WHITMORE, HENRY, Chairman, Publicity Comms., of Liberty Loans and Food Production and Conservation, Newton, Mass.
- WHITNEY, W. R. (V) Member of the Naval Consulting Bd.; directed work on War Problems, Research Lab., including submarine detection devices, used by allied navies, wireless telephone apparatus, used by the Naval Air Service and research work on nitrogen fixation for explosives for Ord. Dept. (Pages 59, 277, 303 and 304.)
- WILSON, A. R. (I) furnished crushed rock for roads at Camp Fremont and Liberty Ship Yard.

TECHNOLOGY'S WAR RECORD

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- ADAMS, W. H. (V) Vice-Pres. and General Mgr., Eastern Finishing Works, Inc., Kenyon, R. I., mfg. waterproofing for the Q. M. Dept., Ord. Dept., Engr. C., and Gas Defense.
- ALLEY, A. H. (IX) Associated, Office of Aide for Information, 1st Naval Dist.
- ATKINSON, G. T. (IV) Asst. Supt., Atlantic Refining Co., Philadelphia, Pa., in charge of construction, and production of gasoline and oil; Supt. of Cons., Emergency Fleet Corp., Housing Operation, Wilmington, Del.
- BASSETT, W. H. (V) Technical Supt. and Metallurgist, American Brass Co., Waterbury, Conn., mfg. all sorts of wrought brass and copper for Army, Navy, and Merchant Marine, including cartridge brass, cupronickel and special alloys; Member, Advisory Comm. for Airplane Specifications and Inspection; Adviser to Ord. Dept. and various Naval Bureaus; Lecturer on the mfr. and uses of brass and copper production, for Bu. of Supplies and Accounts; Consultant, with officers and mfrs. of U. S. and Allied Powers on the production of munitions and supplies.
- BLANCHARD, F. C. (II) Vice-Pres., Detroit Lubricator Co., mfg. carburetors, for Liberty Aircraft motors; oil pumps, carburetors, regulating valves and controls for the "Le Rhone" aircraft engines; lubricating devices and machines for tanks, submarine chasers, sea-sleds and marine motors and engines. (Page 372.)
- BOWEN, STEPHEN (II) manufactured underwear for Army.
- BOYD, S. B. (II) Acting Chief Draftsman, Hull Div., Boston Navy Yard, May '17—Oct. '17, in charge of work converting German ships into transports (Saxonia now Savannah, Breslau now Bridgeport, Kronprinzessin Cecelia now Mount Vernon, Amerika now America, and Cincinnati now Covington). (Pages 234 and 247.)
- BOYNTON, L. H. (IV) Special Expert, Bu. War Risk Insurance, Washington, D. C.
- BRADLEE, H. G. (VI) Member of the firm, Stone & Webster, Boston, Mass.; Member of Dist. Comm. on Capital Issues in the 1st Federal Reserve Dist. (Page 377.)
- BRADLEY, H. C. (I) Assoc. Prof. of Drawing and Descriptive Geometry, M. I. T., and Inst., S. A. T. C. and S. N. T. C.
- BURNS, ROBERT (VI) Treas., Somerville Branch, Red Cross.
- CAMPBELL, G. A. (I) Research Engr., American Telephone & Telegraph Co., working on transatlantic radio communication.
- CARPENTER, ANNE WHITE (Mrs. T. B.) (V) Vice-Pres., Food Conservation Comm., Buffalo, N. Y.
- CHICKERING, G. W. (IV) Civil Engr., Cons. Div., War Dept., Aide to Officer in Charge of the Camp Planning Sect.; Head Draftsman and Engr. in charge hot blast heating and ventilating, Heating and Plumbing Sect., Engr. Branch, Cons. Div., War Dept., 9 Mch. '18—21 Jan. '19.
- CHOATE, F. B. (I) Asst. General Freight Agent, Union Pacific R. R., handling war materials under govt. orders.
- COLBURN, R. D., Sub-Foreman, Crowninshield Shipbuilding Co., Vineyard Haven, Mass., installing engines, boilers, pumps, tanks, shafts, and propellers.
- COLE, H. I. (II) Resident Inspector, Fore River Works, Bethlehem Shipbuilding Corp., Quincy, Mass., U. S. Shipping Bd., Emergency Fleet Corp.
- DAMON, J. L. (I) Capt., American Protective League, Dept. of Justice, Boston, Mass.
- DART, W. C. (X) Sec., Local Bd. No. 2, Providence, R. I., 20 June '17—end of war; Member, Comm., 1st and 2d Liberty Loan Campaigns; Pres., Rhode Island Tool Co., Providence, R. I., mfg. tools for firms engaged in war work.
- DILL, H. A. (I) Chairman, Comm. on Vocational Training Camp and S. A. T. C.; Member, Ex. Comm., Wayne Co. Red Cross, Richmond, Ind.
- DILLON, ARTHUR (IV) Special Agent, Federal Bd. for Vocational Education, Camp Dix, N. J.
- DONN, E. W., JR. (IV) Architect, U. S. Housing Corp.; Housing Project, U. S. Naval Proving Grounds and Smokeless Powder Factory, Indian Head, Md.; Consulting Architect, U. S. Naval Proving Grounds on Machodoc Creek; Architect, dormitories and department houses for U. S. Bu. of Standards, Washington, D. C. (Page 336.)
- FENNER, B. L. (IV) General Mgr., Architectural Div., and Production Div., U. S. Housing Corp., Bu. of Industrial Housing and Transportation, Dept. of Labor.
- FORBES, H. C. (V) (X) Sec., Welding Comm., U. S. Shipping Bd., Emergency Fleet Corp.
- GARRISON, CHARLES (VI) Treas., Kapo Mfg. Co., Boston, Mass., mfg. life saving garments, mattresses and life preservers for the transport service.
- GOULD, ALICE B. (Sp) Clerk in Office of the Naval Attaché, Madrid, '17; Inst. in Navigation, University of Chicago, teaching mathematics and astronomy, '18.
- HALE, R. W., Assoc. Legal Adviser, Norfolk Co., (Mass.) Draft Bd.; Assoc. Legal Adviser, to Suffolk Co. Draft Bd., specially assigned to handle draft questions arising out of the peculiar conditions of M. I. T.
- HAMMOND, A. J. (XI) Worker, under Railroad Adm.; Operative in another govt. organization engaged in work of a confidential nature.
- HANINGTON, C. H. (II) Member, Personnel Dept., Red Cross, Mountain Div., Denver, Colo.
- HATCH, A. E. (I) with J. S. Packard Dredging Co., dredging for U. S. Govt.; Boston Army Base; Torpedo Station, Newport, R. I.; Submarine Base, New London; Marine Railways at Fall River, Mass., New London, Conn., and Providence, R. I.; Melville Coaling Station.

REGISTER OF CIVILIAN RECORDS

- HATHAWAY, H. E. (V) with the Solvay Process Co., Detroit, Mich.
- HERSAM, E. A. (V) in charge of investigations, University of California, on the concentration of ores of chromium and of manganese, co-operating with the Berkeley Station, U. S. Bu. of Mines; Published Pamphlet on "The Possible Treatment of Manganese Ores in California."
- HOLMES, F. C. (IX) Member, Mass. Food Adm.; National Sisal Comm. of the U. S. Food Adm.; Manila Fibre Products Assn., Inc.
- HOPTON, W. E. (II) Purchasing Engr., The Solvay Process Co., Syracuse, N. Y. and Semet-Solvay Co., mfg. alkali and by-product coke ovens and coal tar products, picric acid, benzol products and T. N. T. (Page 364.)
- HOWLAND, ARTHUR (VI) invented "Comparative Color Photometer" for plotting colors so that they follow absolute laws of geometry and mathematics; Adv. Mgr., Wadsworth, Howland & Co., mfg. paints and other materials used in camouflage work, also enamels and lacquers used on shells, fuse boxes and hand grenades, for Govt. (Page 347.)
- JORDAN, H. W. (V) Chemical Engr., Semet-Solvay Co., Syracuse, N. Y., mfg. picric acid and T. N. T., salicylic acid and related chemical products.
- KNOWLES, MORRIS (I) Chief Engr., Morris Knowles, Inc., Pittsburgh, Pa., supervising engrs., Camp Meade, Md., and Camp McClellan, Ala., July '17—June '19; Supervising Engr. in charge at Camp Meade, Div. of Cantonment Cons., War Dept.; Chief Engr., Housing Div., Dept. Housing and Transportation, U. S. Shipping Bd., Emergency Fleet Corp., Feb. '18—June '19. (Page 59, 65 and 66.)
- LUDINGTON, R. S. (II) U. S. Commissioner, Eastern Dist., Wash., for the Selective Draft; Assoc. Member, Legal Advisory Bd., Chelan Co., Wash.
- MANSFIELD, A. N. (VIII) Sec., Burton-Furber Coal Co., Boston, Mass., distributing coal for industrial and domestic use.
- MOORE, F. C. (II) Asst. Mgr. of Production, Pittsburgh Dist. Office, U. S. Bu. of Aircraft Production, Apr. '18—15 Jan. '19.
- MOSELEY, A. W. (II) Prof. of Mechanical Engineering, Lewis Institute, Chicago, Ill.; Inst. in surveying, S. A. T. C.; Member, Educational Comm., Ill. Fuel Adm.
- PALMER, W. I. (VI) Treas., Palmer & Palmer Co., Charlestown, Mass., supplied mahogany airplane stock.
- PIERCE, A. R. (IX) Agent, in charge of development and production, Pierce Mfg. Corp., Pierce Bros. Ltd., New Bedford, Mass., mfg. textiles for aircraft and gas defense; developed the cotton airplane fabric known as Grade A which replaced linen; worked on fabric problems for Army and Navy in conjunction with Bu. of Standards.
- PIERCE, A. W. (VI) in Transformer Engr. Dept., General Electric Co., Pittsfield, Mass.
- PIERCE, J. W. (VI) Engr., Aberthaw Construction Co., constructing Destroyer Plant at Squantum, Mass. Engr., Fay, Spofford & Thordike, constructing Army Supply Base, Boston, Mass.
- PUNCHARD, WILLIAM (IV) Engr. and Asst. General Supt., G. A. Fuller Co., for plant mfg. acetone for Govt., Mechanicsville, N. Y.; Town Planner, Portsmouth, N. H. and Watervliet, N. Y. for U. S. Housing Corp., 1 July '18—Nov. '18.
- READ, C. A. (II) Inst., Steam Engr., S. A. T. C., Worcester Polytechnic Institute.
- ROBERTS, W. J. (I) Consulting Engr. on Water Supply and Sewers, Cons. Q. M., Camp Lewis, Wash. Letter of commendation from Lt. Col. D. L. Stone, Cons. Q. M. upon completion of work. (Page 319.)
- ROBINSON, ETHEL BLACKWELL (Mrs. A. B.) (VII) War Gardener and Food Conservor, Upper Montclair, N. J.
- RYDER, M. S., Assoc. Member, Legal Advisory Bd., Middleboro, Mass.; Asst. Regional Director, Sect. 6, War Resources Comm., Resources and Conservation Sect.; Director, Local Chapter Red Cross, Liberty Loan Campaigns, War Savings Comm., War Work Drives in Middleboro, Mass.; Chairman, Local Four Minute Men.
- SHATTUCK, A. F. (V) Chemical Engr., engaged in Potash Production, Beverly Hills, Calif.
- SMITH, E. C. (II) Treas. and Mgr., Morsberg Wrench Co., supplying warp stop equipment for looms weaving Army and Navy fabrics; Treas., Wardwell Braiding Machine Co., mfg. machinery used in production of electric wires and cotton shoe thread for war purposes.
- SPOONER, G. H. (VI) Supt. of Surveys, Schedule Rating Office, Newark, N. J.; inspected war industries at request of Govt.
- STEEL, W. J., Spinner of worsted yarns for mfg. of cloth for U. S. A.
- SWAN, JAMES (II) Gen. Mgr., Herreshoff Mfg. Co., Inc., building patrol boats, aeroplane barges and hulls for flying-boats. (The NC-4 hull was built there.) (Page 244.)
- WASON, L. C. (VI) Pres and Treas., Aberthaw Construction Co., building plants for mfg. small arms, rifles, machine guns, bandages, and several shipyards, including the Victory Destroyer Plant at Squantum, Mass.
- WEED, H. T. (V) Principal, Evening Trade School, Bd. of Vocational Education, Brooklyn, N. Y.
- WELLS, G. F. (VI) Mgr., Transportation Div., U. S. Housing Corp., New York, 29 Apr. '18—Nov. '18. See Military Record.
- WETHERBEE, C. P. (II) Vice-Pres. and Supt. Engr., Bath Iron Works, Ltd., Bath, Me., building destroyers for U. S. Navy.
- WETHERBEE, G. H., JR. (I) Engr. in charge of topography and layout, Camp Devens, Mass., Quincy Housing Plant, Mass., and at Port Penn., Del. (Page 382.)

TECHNOLOGY'S WAR RECORD

- WHITE, H. L. (I) Engr., Norfolk Co. Comm., constructing Norfolk Co. Hosp., and Quincy Ave. Bridge, Braintree, Mass.
- WHITLEY, C. W. (VI) Vice-Pres., American Smelting & Refining Co., increasing production of sulphuric acid by use of smelter gases; produced quantities of potash alum; smelted lead and copper ores; Chairman, Foreign Corporations Comm., Liberty Loan and Red Cross Drives; Member, Utah State Council of Nat. Defense.
- WILDER, S. W. (X) Pres., Merrimac Chemical Co., Boston, Mass., producing chemicals for mfr. of munitions and explosives for U. S. and Allied Govts.
- WILSON, F. A. (II) Treas., J. P. Wilson & Son, Inc., Nahant, Mass., Building Contractors, manufactured some anti-submarine material for Navy Dept.; Publicity Chairman, Nahant Public Safety Comm.; Member, Mass., Bd. for Curtailment of Non-War Construction.
- YOUNG, H. H. (II) Treas. and General Mgr., J. L. Hammett Co., Cambridge, Mass., furnishing blackboards for training camps and schools, and supplies for hosps. in U. S. and Canada. (Page 68.)
- 1892
- BASSETT, G. O. (V) Sect. Head, Chemical Research Dept., Western Electric Co., N. Y., developing analytical methods of determining ingredients in the new alloys used in war communicating apparatus, seals and compounds for submarine apparatus.
- BIGELOW, C. H. (VI) Chief Mechanical Engr., Millville Mfg. Co., mfg. olive drab cotton for uniforms, cotton material for towels and other articles for Govt.
- BURBANK, P. M. (VI) Inspector, Assoc. Factory and Mutual Fire Ins. Cos., Boston, Mass.
- BURRAGE, SEVERANCE (VII) Scientific Asst., U. S. Public Health Service, 1 Jan. '18; Waco, Texas, 10 Jan.; New London, Conn., 10 Aug. '18; Ayer, Mass., 1 Jan. '19; special work with National Tuberculosis Assn., Denver, Colo., 16 Jan. '19. Certificate of Service during influenza epidemic, '18-'19, from U. S. Public Health Service. See Military Record.
- BURROUGH, HORACE, JR. (V) Authorized Agent, General Staff, Military Intelligence, War Dept.; general intelligence work in Baltimore covering military and civilian subjects as to loyalty.
- CHASE, C. H. (VI) Prof. of Steam Engr., Tufts College, in charge of automobile instruction and repair, Engr. School, in courses for vocational units of enlisted and drafted men.
- CHASE, R. D. (XI) Consulting Engr., Hazen, Whipple & Fuller, New Bedford, Mass., for water supply and sewers, Camp Dix, N. J.; Engr., Civil Engr. Dept., Air Nitrates Corp., designing Toledo and Cincinnati Plants
- CLARK, CLARA M. (XII) Red Cross Worker.
- CODY, L. P. (VI) Block Chairman, Liberty Loan Campaign, Grand Rapids, Mich.
- COLBY, J. M. (II) Engr., Underwriters' Bu. of New England, furnishing plans and reports of industries in New England to Fire Prevention Sect., War Industries Bd.
- COOLIDGE, J. R., JR. (IV) Regional Director for New England (except Conn.), Highways Transport Comm., Council of National Defense; Director, Metropolitan Chapter, Red Cross, Boston; Chairman, Boston Architects Comm., Liberty Loan Campaigns. (Page 308.)
- DANA, GORHAM (I) Vice-Chairman, Brookline Comm. for Patriotic Subscriptions.
- DAVIS, F. I. (IV) Member, Draft Bd., Hartford, Conn.
- DE GERSDORFF, G. B. (IV) Chief Clerk, Local Exemption Bd., No. 138, New York City, 1 Dec. '17—Apr. '18; Organizer and Manager, Special Red Cross Work Room for spagnum moss dressings, 6 Apr.—1 Aug. '18.
- DOUGLASS, W. B. (I) Pres., New England Structural Co., Boston, Mass., furnishing steelwork for Watertown Arsenal, Destroyer Plant at Squantum, Charlestown Navy Yard, Boston Army Supply Base and numerous buildings for industrial plants engaged in war work.
- DUDLEY, W. N. (IV) General Inspector for Field Auditor, Army Base, Boston, Mass., 19 Mch.—25 Nov. '18.
- FRENCH, ALLEN (IX) Pvt., 10th Plattsburg Training Regt., Sept.—Oct. '16; Local Food Adm., Federal Food Adm., Concord, Mass.
- FULLER, C. E. (II) Prof. of Theoretical and Applied Mechanics, giving intensive courses to regular students and short courses in Power Measurement to Naval Aviation Detachment, M. I. T.
- GRAY, W. P. (VI) Chairman, Red Cross, Elliott Co., Ky.; developed coal and oil production in Ky.
- GREEN, W. W. (I) Engr., on irrigation work for rice growing, Briggs, Calif.
- GRIMES, C. B. (V) Adj., New Rochelle, N. Y., Police Auxiliary; Treas., New Rochelle Liberty Loan Comm., Fourth Loan.
- HEYWOOD, A. S. (VI) Capt. of Team, Red Cross and Y. M. C. A. Campaigns, also for K. of C. and War Camp Funds, Worcester, Mass.
- HOXIE, F. J. (VI) Engr., and Special Inspector, Assoc. Factory Mutual Fire Insurance Cos., Boston, Mass.; worked on airplane cloth, presenting report at meeting of the American Society of Mechanical Engrs.

REGISTER OF CIVILIAN RECORDS

- HUTCHINSON, W. S. (H) Mining Engr., exploring in New Caledonia for war minerals, Dec. '16; in South America, '17. (Page 314.)
- JOHNSON, J. F. (X) Gen. Supt., Curtis & Harvey, Ltd., Canada, in charge of works mfg. gun cotton, and T. N. T. for war purposes.
- KALES, W. R. (H) Inspector, Supply Div., Aviation Sect., Sig. C., Hq., Washington, D. C., 9 Feb.—9 Apr. '18; superintending mfg. and erection of steel hangars. See Military Record.
- LEE, ELISHA (H) Federal Mgr., Pennsylvania R.R. Eastern Lines, U. S. Railroad Adm.
- LEWIS, D. C. (V) Agent, in charge of plant, Millville Mfg. Co., Millville, N. J., mfg. olive drab uniform linings for Army, Winterfield uniform linings for Marine Corps, rain coat cloth for Army; Chairman, local branch, Red Cross; Vice-Chairman, Cumberland Co. (N. J.) Red Cross; Chairman, 2d Red Cross War Fund; Chief, Millville Div., American Protective League; Member, Comm. from National Assn. of Finishers of Cotton Fabrics, and the Rubberizers Assn. to consider rain coat cloth problems.
- LOOK, M. J. (I) Chairman, Ex. Comm., Bd. of Directors, York River Shipbuilding Corp., West Point, Va.; Vice-Pres., Kingston Shipbuilding Corp., Kingston, N. Y.; Representative, Winston & Co., in charge of construction, Camp Eustis and Balloon School, Lee Hall, Va.
- McCAW, W. E. (VI) Adviser, Edible and Non-Edible Oil Depts., U. S. Food Adm.; Member, War Service Comm., Soap Mfrs., and Lard Substitute Mfrs.
- MANLEY, L. B. (I) Cons. Engr., Monks & Johnson, supervising shipyard construction for concrete ships, at Wilmington, N. C.; extension of yard of Bethlehem Shipbuilding Corp., Sparrows Point.
- MANSFIELD, R. H. (VI) Production Expert, Chicago Ord. Dist. Office, Ord. Dept., until armistice; Sec., Chicago Dist. Claims Bd.
- MESERVE, F. H. (IV) Mgr., several woolen mfg. concerns, producing materials for Govt.
- METCALF, LEONARD (H) Member, Comm. on Emergency Construction of Buildings and Engineering Structures, Council of National Defense; Consulting Engr., Construction Div., U. S. Army; Member, Firm of Metcalf & Eddy, Boston, Mass., furnishing designs for some of the utilities at Squantum Victory Plant and some aviation camps and for U. S. Housing Corp. projects at Newport News, Va. (Pages 308 and 315.)
- MILLER, H. S. (VI) Pres., Lake Torpedo Boat Co., building submarine torpedo boats for U. S. N.
- MOODY, H. R. (V) Technical Adviser, Chemicals Div., War Industries Bd., Washington, D. C., Dec. '17—Jan. '19.
- MORSE, J. G. (I) Appraiser for munition plants, Assoc. Factory and Mutual Fire Insurance Cos., Boston, Mass.
- MUHLBERG, C. H. (IV) Maj., Pa. Reserve Militia. Capt., 1st Inf., Pa. Reserve Militia, 4 Dec. '17; Maj., 8 June '18; in charge of Emergency Hospital during influenza epidemic.
- NEWKIRK, W. M. (II) Member, group of engrs., Q. M. General's Dept., which developed standardized trucks, 1 Aug.—Oct. '17; Vice-Pres. and General Mgr., Wm. & Harvey Rowland, Inc., mfg. automobile springs for customers having war contracts.
- NORCROSS, J. C., Asst. Supt., Installations Dept., Edison Electric Illuminating Co., Boston, Mass., supplying current to Watertown Arsenal, Victory Plant at Squantum, Charlestown Navy Yard, Commonwealth Dock, and munition plants.
- OBER, A. J. (I) Maj. (Class B), Engr. O. R. C. Entered Service 13 June '17; not assigned to active duty, as services were needed for important work as a civilian. Asst. Engr., Engr. Dept., U. S. A., Newport, R. I., in direct supervision of all fortification work in the Newport (R. I.) Dist., including the defenses of Narragansett Bay and New Bedford Harbor.
- *PACKARD, AMBROSE (I) Member, Emergency Dredging Comm; Pres., J. S. Packard Dredging Co., co-operated on the following projects of military necessity: Boston Army Base, Newport Naval Torpedo Station, Melville Naval Coaling Station, New London Submarine Base, Portland Emergency Ship Channel, and Groton Iron Works, Conn., and Crowninshield Shipbuilding Co., Mass., Shipping Bd. Ship Yards. Deceased.
- PERKINS, F. E. (IV) Resident Engr., Butterworth-Judson Corp., General Contractors for a plant to make 100 tons of picric acid, 800 tons of sulphuric acid and 300 tons of nitric acid per day for explosives, Brunswick, Ga.
- PETTEE, E. E. (V) Supervising Engr., Cons. Div., Sea Coast Defense, Northern New England, U. S. A.
- PIERCE, A. G. (VI) Mgr. Central Dist., The Cutler Hammer Mfg. Co., mfg. material for war purposes.
- POLLARD, A. A. (IV) Laborer, Bolt-man, Timekeeper, Hodge Ship Co., Inc., Moss Point, Miss.
- PRATT, D. M. (I) Engr., Town Planning Dept., Bridgeport, Conn.; Supt., J. H. Sullivan Co., working on Watertown Arsenal.
- RHODES, F. L. (VI) Outside Plant Development Engr., American Telephone & Telegraph Co., conserving use of materials and developing alternative materials and methods to meet war conditions, to release materials needed by Sig. C. of A. E. F. for military use and to meet essential telephone requirements in U. S.
- ROBERTSON, A. R. (II) Managing Director, Watson, Laidlaw & Co., Ltd., a British establishment producing munitions of war.
- ROBINSON, D. P. (VI) Pres., American International Shipbuilding Corporation, Hog Island, Pa. (Pages 385 and 390.)
- ROSEWATER, W. M. (II) Commercial Engr., Bucyrus Co., So. Milwaukee, Wis., mfg. steam shovels, railway equipment, etc.

TECHNOLOGY'S WAR RECORD

- RUGGLES, H. F. (II) Consulting Engr. for sugar plantation; constructor of special sugar machinery.
- SHERMAN, L. K. (I) Asst. Engr., General Mgr. and Director, War Workers in Munition Plants, U. S. Housing Bu., Washington, D. C.
- SKINNER, T. H. (IV) Asst. to the Resident Mgr., Air Nitrates Corp., Plant No. 2, Muscle Shoals, Ala., Mch. '18; later Field Engr. called Cons. Director, supervised construction of Plant No. 2, the largest single operation of the War Dept. during the war, until it was in operation, 8 Jan. '19. See Military Record and page 4.
- SLADE, J. H. (II) Assoc. Member, Legal Advisory Bd., Quincy, Mass.
- SNOW, R. B., Operative, American Protective League, Auxiliary to U. S. Dept. of Justice, investigating and watching those of German tendencies.
- SWEETSER, R. H. (III) Works Mgr., The American Rolling Mill Co., Columbus, Ohio, Blast Furnace Div., making steel for shells, forgings, steel castings, sheets for mines, 155" shells, in the rough, etc.; Capt. of team in Mfrs. Div., Liberty Loan Drive.
- TROWBRIDGE, W. B. (II) Purchasing Agent, Civil Engr. Corps, Navy Dept., Mch.—July '18, and 1 Aug. '18—10 Apr. '19, purchasing materials for Pelham Naval Training Camp, Pelham, Bay, N. Y.
- TUCKER, R. F. (IV) Cons. Mgr., Thompson-Starrett Co., for Cons. Q. M. Dept. at Camp Upton (77 Div.), '17; Supt., Pile Foundations for Q. M. Stores, Port Newark Terminal, Port Newark Bay, Dec. '17—Jan. '18; U. S. Explosives Plant "C," Nitro, West Va., Jan. '18—'19. "Certificate of Service" by authority of the Sec. of War.
- VINING, J. F. (IV) Asst. with Monks & Johnson, Aberthaw Construction Co., Maine Central R.R., Portland, Me.; working on destroyer plant, Squantum, Mass., munition plant, Bridgeport, Conn., car shops, Waterville, Me., etc.
- WALKER, FRANCIS (IX) Chief Economist, Federal Trade Comm., Washington, D. C., directing Economic Work of the Federal Trade Comm., especially the Cost Finding Work for the use of the War Industries Bd., Fuel Adm., Food Adm., W. D., Navy Dept., in connection with price fixing and purchasing.
- WALLACE, C. F. (VI) with American International Shipbuilding Corp., Hog Island, Pa. (Page 391.)
- WARDNER, H. L. (IV) Head of Architectural Div., Fred T. Ley Co., in construction of Ammonium Nitrate Plant, Perryville, Md., for U. S. Army.
- WARNER, MURRAY (II) in charge of mechanical installation for Hazen. Whipple & Fuller, at Camp Dix, 12 July—26 Oct. '17. See Military Record.
- WEBB, H. S. (VI) Prof., Electrical Engr., University of Florida, and Inst., Sections A. and B, S. A. T. C., 14 Aug. '18—Dec. '18.
- WEIS, S. W. (I) Sec., Citizens Protective Comm., New Orleans, La.; Representative for Gulf of Mexico, U. S. Shipping Bd., Div. of Operations; Member, Cotton Price Fixing Comm., War Industries Bd.; Member, State Council of Defense. (Page 332.)
- WELLS, E. C. (II) Vice-Pres. and General Mgr., Platt Iron Works Co., Dayton, Ohio, mfg. munitions and equipment for Army and Navy. (Page 366.)
- WHITE, W. P. (V) Physicist, Geophysical Laboratory of the Carnegie Institution, which joined the Sect. of Optical Glass Production of the War Industries Bd. making thermal investigations dealing with optical glass, gas masks, and nitrate production.
- WOOFFINDALE, W. H. (V) Textile Chemist, on control work and investigations for mills mfg. arms, munitions and textiles.

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- ABBOTT, F. B. (VI) Asst. Chief Draftsman, General Electric Co., Lynn, Mass.
- ALEXANDER, F. W. (V) Member, Local Draft Bd., Richmond, Maine.
- AMES, J. O., Treas. for R. I. of the United War Work Campaign, Inc.; Member, Ex. Comm. of the Liberty Loan Comm. of R. I.
- BAKER, F. W. (II) Asst. Supt. of Cons., Bath Iron Works, Ltd., Bath, Maine, building torpedo boat destroyers for the U. S. N. (Page 383.)
- BARNES, W. T. (I) Project Engr., U. S. Housing Corp., Newport News, Va.
- BAXTER, J. B. (V) Chairman, W. S. S. Campaign; Chairman, Red Cross Membership Campaign; Treas., Y. M. C. A. War Work Fund, and United War Work Campaign; Member, Comm. on Public Safety and American Protective League, Milton, Mass.
- BEATTIE, R. H. (I) Chairman, Local Draft Bd., No. 6, of R. I.; Asst. Mgr., Wood Ship Div., Emergency Fleet Corp., in charge of hull construction.
- BEMIS, A. F. (I) Member following comms. of the Advisory Comm., Council of National Defense; Labor, Cotton Goods Buying, Production Engr., Cotton Goods Sect.; Member, War Service Comm., National Council of American Cotton Mfrs.; Chairman, Ex. Comm., National Assoc. Bag Mfrs.; Member, M. I. T. War Service Auxiliary; Member, Comm. on Industrial Inquiry of the National Civic Federation, sent to Europe, Mch. '19, to investigate industrial conditions in England and France. (Pages 48, 64, 66, 71 and 308.)
- BLAIR, J. B. (IV) Architect with Monks & Johnson, Engrs., and Fay, Spofford & Thordike, Consulting Engrs. on work at Victory Plant, Squantum, Mass., and Army Supply Base, Boston, Mass.

REGISTER OF CIVILIAN RECORDS

- BLAKE, E. E. (II) Plant Mgr. of Saco-Lowell Shops, Biddeford, Me., and Lowell, Mass., mfg. machinery for textile mills and some munition works.
- BLISS, CLARA A. (V) (VII) in charge for one year of relief work done by faculty and students at Wells College, Aurora, N. Y., for the American Fund for French Wounded.
- BLOOD, G. T. (VI) Telephone Engr. with American Telephone & Telegraph Co., New York City.
- BOYD, J. C. (III) in '17, Member, sub-committee of three on Engineering and Construction contracts of the General Munitions Bd., War Dept., to draft a form of construction contract; First Vice-Pres. in executive charge of Westinghouse, Church, Kerr & Co., Inc., New York, actively engaged in work directly or indirectly for Govt. (Page 375.)
- BREED, S. A. (II) Asst. Prof. of Drawing and Descriptive Geometry, M. I. T., and Inst., S. A. T. C.
- BREMER, S. P., Member, Ex. Comm., Cotton Duck Assn.
- BROCKUNIER, S. H. (III) Supt., Chateaugay Ore & Iron Co., Lyon Mt., N. Y.
- BROWN, C. C. (I) Consulting Civil Engr., Standard Steel Works Co., Burnham, Pa., mfg. shells and shell forgings for domestic and foreign governments as well as gun forgings for the U. S. Govt.
- BROWN, F. E. (IV) Pvt., Conn. State Guard, on guard, police, and riot duty, '17-'18-'19.
- BUCHANAN, L. B. (VI) Member, State Comm. on Public Safety, and Chairman, Comm. on Public Safety, Woburn, Mass.; Dist. Chairman, Red Cross Drives (Medford, Winchester, Woburn); Adviser on submarine defense, gas mask production, aeroplane factory facilities.
- BUSTEAD, DALE (IV) representative in Russia to make a commercial study for the du Pont Co., spring '17—Apr. '18. See Military Record.
- CADWELL, W. H. (II) Factory Mgr., The Jackson Mills, Nashua, N. H., mfg. drills, sheetings and flannels in large quantities for U. S. Army and Navy.
- CALKINS, LEIGHTON (II) Vice-Pres., New Jersey State Council of Defense.
- CARNEY, E. B. (II) Treas., 2d Red Cross War Fund, Lowell, Mass.
- CHADWICK, H. M., Asst. Engr., The Boston Bridge Works, furnishing structural steel for Fore River Shipbuilding Co., Squantum Destroyer Plant and Worthington Pump Works.
- CLAPP, J. C., JR. (IV) Architect and Engr., working on buildings of Watertown Arsenal, Mass.
- CLAPP, W. A. (I) Civil Engr. and Supt. of Cons., Q. M. C., War Dept., Fort McDowell, Calif., in charge of construction of hospital and other buildings, and of water and sewerage systems to camp sites.
- CODMAN, J. S. (VI) Mgr., New England Belgian Relief Fund, Nov. '15—May '19.
- CONNABLE, F. L., Member of Ex. Comm., and Vice-Pres. in charge of special purchasing, E. I. du Pont de Nemours & Co. (Page 355.)
- CROSBY, W. W. (II) Architect for power plants for mills making textiles for Army, and tin smelting plants.
- DAVIS, A. G. (VI) Vice-Pres., General Electric Co., Schenectady, N. Y.
- DAWES, H. N. (II) Pres. and Treas., Nightingale & Childs Co., Boston, Mass., mainly devoted either directly or indirectly to war contracts.
- DILLON, F. N. (V) Treas., D. M. Dillon Steam Boiler Works, Fitchburg, Mass., engaged in making boilers for munitions plants and plate iron work for cantonments and arsenals.
- DODGE, S. D. (I) Supervising Engr., Production Engr., Nitro, W. Va., Ord. Dept., supervising water supply system; connected with New York Dist. in production of picric acid and settlement of claims.
- EDWARDS, A. B. (IX) served with Food Adm., Northern R. I., Hotel and Restaurant Dept.
- EMERY, S. S. (V) Chief Chemist, Louriers Works, Colo., E. I. du Pont de Nemours & Co., mfg. explosives.
- ESTY, WILLIAM (VI) Assoc. Member, Legal Advisory Bd., Dist. No. 4, Northampton Co., Pa.; in charge Electrical Trades Courses for enlisted men, Camp Coppee, Lehigh University.
- FAY, FREDERIC H. (I) Member of firm, Fay, Spofford & Thorndike, Boston, Mass., designers and supervisors of construction, Boston Army Supply Base, for Construction Div. U. S. A.; Engineering advisers to Red Cross, Council of National Defense and U. S. Shipping Board; Member, War Bd. on Restriction of Building Operations in Boston; Member, Committee on Port War Facilities, and Director, Boston Chamber of Commerce. (Pages 65, 66 and 322.)
- FORBES, W. S., Chairman, War Service Comm., National Assoc. Employing Lithographers, standardizing weights and sizes of paper used by all lithographing concerns in the U. S.
- FOWLE, A. E. (X) Chairman, Mfrs. Comm., Liberty Loan Campaigns, and Red Cross Drives, Charleston, W. Va.
- GARLICH, C. F. (IV) Member, Cons. Dept., U. S. Housing Corp.
- GILSON, H. A., with F. S. Payne Co., Boston, mfg. electric machines for munitions plants and Charlestown Navy Yard.
- GLIDDEN, G. B., Member, Comm. visiting England, Scotland, France, and Belgium to observe war, under the auspices of State, War and Treasury Departments and at request of New England Liberty Loan Comm.
- GORHAM, MARYNE (II) Member, Production and Inspection Dept., Sig. C. (later Aircraft Production Bd.), working in Buffalo, Elmira, Ithaca, Toledo and Detroit.

TECHNOLOGY'S WAR RECORD

- GRAVES, W. H. (IV) Examiner, National War Labor Bd., Oct. '18—Feb. '19, holding hearings in labor controversies in connection with war industries.
- HADLEY, F. W. (VI) Supt., Water Power Plants, Georgia Railway & Power Co., Atlanta, Ga., in charge of plants for operation of essential industries in forty-five towns and cities
- HAWLEY, J. C. (V) Fire Protection Engr., Fire Prevention Sect., Council of National Defense and War Industries Bd., investigating fire hazards and recommending means of fire prevention and protection in munitions plants; met with Senate Comm., as expert in investigation of the explosion of 13,000,000 pounds of T. N. T. at Morgan, N. J. (Pages 308 and 310.)
- HUNT, MYRON (IV) Asst. Field Representative, Emergency Fleet Corp.; Chairman, Finance Comm., War Camp Community Service; Capt., American Protective League.
- JACKSON, D. D. (V) Dean, School of Military Photography, Sig. C.; Member, Comm. Military Training Camps Assoc., delegated by Sec. of War to visit camps; Member, Comm. on Water Supply, Council of National Defense; Member of Staff, School of Explosives, Ord. Dept. (Page 308.)
- JAMESON, A. H. (V) Vice-Pres. and General Mgr., Bayonne Steel Co., Bayonne, N. J., producing castings for war work.
- KENISON, ERVIN (II) Assoc. Prof. of Drawing, M. I. T., doing intensive work preparing students for entrance examinations of Engr. C.
- KEYES, F. H. (II) Editor, Engr. and Architectural Editions of Sweet's Catalogue, used by various depts. of Govt. as guide for purchase of engr. supplies and equipment.
- KING, G. I. (II) (III) Special Salesman to Russia, Eastern Car Co., Ltd., of New Glasgow, Nova Scotia, selling box cars to Russian State Railways, Nov. '14—Mch. '17; Gen. Mgr., Eastern Car Co., Ltd., Mch. '17—Feb. '18.
- LATEY, H. N. (VI) Electrical Engr., B. F. Wood Engr., Inc., constructing U. S. Govt. Picric Acid Plant, Little Rock, Ark.
- LATHAM, H. M. (II) with Crompton & Knowles Loom Works, Worcester, Mass.
- LEVI, LOUIS (IV) connected with Emergency Fleet Corp. for fourteen months.
- LOGAN, J. W. (II) Mgr., Open Hearth Steel Plant, Blooming and Plate Mill, Alan Wood Iron & Steel Co., Conshohocken, Pa., making ship plates for Emergency Fleet Corp.
- LOMB, ADOLPH, (II) Member of firm, Bausch & Lomb Optical Co., Rochester, N. Y., mfg. optical and engineering instruments, optical glass for range finders, gun sights, telescopes, binoculars, periscopes and camera lenses. (Page 408.)
- LORD, F. W. (VI) Pres., Lord Electric Co., and Lord Construction Co., Providence, R. I., equipping ships for Emergency Fleet Corp. (Page 391.)
- MARCY, W. A. (II) Mechanical Engr., The Lamson Co., Boston, Mass., designing mechanical conveyors for munition plants.
- MERRILL, G. E. (IV) General Asst. Engr., Cotton Purification Dept., Smokeless Powder Plant, Nitro, W. Va.
- MIRICK, G. L., Engr., Fay, Spofford & Thorndike, Consulting Engrs., in charge construction Boston Army Supply Base, Apr. '18—Aug. '19.
- MORRILL, H. W. (I) Chairman, Local Draft Bd., Div. No. 7, Mass.; Chairman, 1st Liberty Loan, Ludlow Mass.
- MORSE, H. A., (VI) Treas., Simplex Wire and Cable Co., furnishing material for Navy and Sig. C. of the Army.
- NORTON, C. L. (VI) Engr., Naval Consulting Bd., Ord. Dept., U. S. N.; Science and Research Div., Sig. C.; Pres., Norton Laboratories; Pres., Asbestos Shingle Co.; originated process and built plant for mfr. of metallic magnesium and associated in the development work for increase of production of asbestos materials. (Pages 281 and 327.)
- PAGE, E. S. (III) Chairman, Comm. on Food Production, Melrose, Mass.; Member, Legal Advisory Bd.
- PHILLIPS, H. M. (II) Supt., Irwin-Phillips Co., Keokuk, Iowa, mfg. work clothing for the Army.
- PORTER, E. A., Junior Engr., U. S. Shipping Bd.
- RANDALL, E. B. (VI) with American Biscuit Co., San Francisco, Calif., mfrs. of hard bread and other biscuits for Army and Navy.
- REED, J. H. (VI) Owner, National Machine & Tool Co., Boston Mass., producing material for submarines and destroyers.
- RICHARDSON, F. D. (II) Engr., Inside Plant Long Lines Dept., American Telephone & Telegraph Co., New York City.
- ROBERTS, W. E., Supervisor of Boys' Work, Lake Div., Red Cross; Director of Manual Training, Cleveland Chapter, Junior Red Cross; Member, Ex. Comm., Cleveland Chapter, Red Cross.
- ROGERS, H. L. (VI) Mgr., Div. of Cons. and Engr., Stone & Webster, Boston, Mass.; Adviser, Engr. Cons. Comm., Council of National Defense in organizing Cons. Div. of Army. (Pages 377 and 385.)
- SANDERSON, E. S., Sales Mgr., Scovil Manufacturing Co., Waterbury, Conn., producing munitions.

REGISTER OF CIVILIAN RECORDS

- SPEER, J. R.** (II) Pres., Pittsburgh Iron & Steel Foundries Co., producing material for Ord. Dept.; Director, under appointment by Alien Property Custodian, in Bayer Co., Williams & Crowell Color Co., Synthetic Patents Co., and Heyden Chemical Works, all enemy-owned companies, increasing production under American management during the war.
- SPOFFORD, C. M.** (I) Member of firm, Fay, Spofford & Thorndike, Boston, Mass., designers and supervisors of construction, Boston Army Supply Base, for Cons. Div., U. S. A.; Engr. Advisers to Red Cross, Council of National Defense, and U. S. Shipping Board. (Page 322.)
- STOSE, G. W.** (I) engaged in War Mineral Surveys for Govt., chiefly manganese, through U. S. Geological Survey.
- SUTTER, F. C.** (VI) Supervisor of Production, representing Ord. Dept. at various factories in Detroit.
- SWANTON, W. I.** (I) Asst. Engr., U. S. Reclamation Service, working for development of crops and of soldier settlements on govt. irrigation projects in the West.
- TAINTOR, C. W.** (VI) Plattsburg Training Camp, '15-'16; Ex. Officer, Essex Co. Rifle Club, '15-'16-'17; Member, Mass. Comm., 3d Liberty Loan. (Page 4)
- TAYLOR, C. M.** (II) Draftsman, Navy Dept., for 17 years, working on urgent repairs and alterations of naval ships and fitting out transports during war.
- THOMAS, P. H.** (VI) Consulting Expert, Power Sect., War Industries Bd., consulting on electric power matters.
- TRIPP, C. A.** (VI) Factory Mgr., Holcombe & Hoke Mfg. Co., Indianapolis, Ind., producing V. B. rifle grenades for Ord. Dept., until 23 Oct. '18; Plant Mgr., Ball Grain Explosives Co., loading V. B. rifle grenade fuses and loading and assembling V. B. rifle grenades; designed a rifle grenade accepted by Inventions Bd. and under test by the Ord. Dept., Engr. Bu., when armistice was signed.
- TUCKER, W. A.** (III) Vice-Chairman of Oakdale (Calif.) Branch, also Treas. of Junior Auxiliaries, Red Cross; served as Registrar on both drafts.
- TUTTLE, R. C.** (IV) managed the 2d Red Cross Drive, Windsor, Conn; through production of own plays "Young Leonardo," raised \$1000 at Bar Harbor, Me., for French Hospital Fund; sold water color painting, for benefit of Red Cross in several cities; painting, "The Zeebrugge Raid," made at request of the Fifth Liberty Loan solicited in Fifth Avenue display in New York.
- WADSWORTH, A. B.**, (VII) with Div. of Laboratories and Research, Dept. of Health, New York, which trained technicians for army laboratories and supplied Army and Navy with serums used in diagnosis and treatment of pneumonia, epidemic meningitis and dysentery.
- WALKER, C. R.** (V) Asst. Supt., Warren Chemical Products Co., Warren, Pa., mfg. gun cotton for France and England, Jan. '15-Nov. '16; Supt., Nitro Powder Co., Kingston, N. Y., mfg. T. N. T., nitroglycerine, dynamite and nitronaphalene for France and other European countries, '16-'17; special work on soluble cotton with Aetna Explosives Co.; Organizer and Vice-Pres., Conewango Chemical Co., Warren, Pa., mfg. soluble cotton products, airplane dopes, etc., June, '17.
- WALLIS, R. N.** (IX) Auditor, local branch, Red Cross, Fitchburg, Mass.; Sec., Volunteer Aid Comm., in home service work of Red Cross.
- WARREN, F. I.** (II) Sales Engr., Industrial Works, Bay City, Wash., producing cranes and other railroad machinery for Europe and for shipyards in this country.
- WEBSTER, L. J.**, Chairman, Local Public Safety Comm., Local Food Adm.
- WEEKS, H. E.** (IV) Architect for U. S. Housing Corp. for Industrial Houses, Alliance, Ohio.
- WHISTON, W. C.** (VI) Legal Adviser, Legal Advisory Bd., War Dept.
- WHITAKER, S. E.** (VI) Consulting Cost Accountant, Philadelphia Dist. Ord. Office, investigating claims against Ord. Dept. of the Army arising from the signing of the armistice and the suspension of contracts. See Military Record.

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- ABBOT, C. G.** (VIII) at Smithsonian Institute, co-operating with U. S. Engrs., on improvement of searchlights; studies resulted in adoption of new field searchlight used on the Western Front in Oct. '18. (Page 273.)
- ADAMS, R. B.** (X) Factory Supt., Boston Belting Corp., mfg. rubberized fabrics for gas masks, battery deck covers, and trench hose.
- BARTLETT, J. G.** (IV) volunteered but refused on account of eyesight.
- BARTON, H. R.** (VI) Engr. in charge, Westinghouse, Church, Kerr & Co., Inc., at Naval Proving Ground, Indian Head, Md. enlarging power plant and smokeless powder factory.
- BATCHELLER, H. R.** (III) Special Investigator and associate to Chief of Investigation, Employers' Group, National War Labor Bd.
- BATSON, W. V.** (VI) Electrical Engr., Hollis French & Allen Hubbard, inspector and adviser to Corporation's superintendent on houses and heating plants installed for U. S. Housing Corp.
- BEACH, C. B.** (X) Member of firm manufacturing glycerine used in high explosives.
- BEAN, N. S.** (VI) National Bank Examiner. Treasury Dept.
- BEARDELL, G. R.** (IX) Member of Ex. Comm. on each War Loan and War Chest Drive.
- BENEDICT, V. L.** (VI) Manager, Los Angeles Fire Alarm Co., installing fire protection in many plants on govt. work.

TECHNOLOGY'S WAR RECORD

- BLANC, S. P., Manager, Eureka Fire Hose Manufacturing Co., Denver, Colo.
- BOVEY, W. H. (VI) Director, Washburn Crosby Co., Minneapolis, Minn., and Pres., Dunwoody Institute, training 7000 men for Army and Navy along industrial lines. (Pages 59 and 345.)
- BROWN, H. A., Member, Volunteer Medical Service Corps.
- BROWN, W. V. (VI) Manager, Engr. Societies Employment Bu., New York City, assisting Govt. in finding engr. for special work.
- BUGBEE, L. W., Factory Mgr., Onepiece Bifocal Lens Co., Indianapolis, Ind.; served in advisory capacity to Govt., selecting equipment of Optical Unit.
- BULLARD, MARY B. (IV) worked for Red Cross and French Relief.
- CHACE, M. S. (II) Naval Architect, Engr. and Shipbuilder, offered services to French Minister of War, Aug. '14, and went to France; became member French Artillery Comm., subsequently the French High Comm. Returned to America, purchasing and inspecting all war supplies for French Govt. until fall of '19. Chevalier of the Legion of Honor. (Page 143.)
- CHICKERING, A. P. (I) Member, Legal Dept., U. S. Shipping Bd., Boston, Mass.; Govt. Appeal Agent, Draft Service, Div. 21, Mass.; Legal Advisory Bd., North Andover; Member, Ex. Comm., Essex County Chapter, Red Cross.
- CLARK, W. L. (II) Division Engr., Calif. Highway Comm., Dept. of Engr., constructing state roads and bridges of military and civilian necessity.
- COPELAND, H. F. (I) Chairman, Haworth Branch, Hackensack (N. J.) Chapter, Red Cross.
- CURTIS, T. P. (VI) Capt., 1st Motor Hospital Unit, Mass. State Guard, Mch. '18—June '19; Vice-Pres., Lord Construction Co., furnishing equipment for ships for the Emergency Fleet Corp. (Page 391.)
- DATES, H. B. (VI) Prof., Electrical Engr. Dept., Case School of Applied Science, Cleveland, Ohio, carrying on special courses for Signal Corps.
- DAVIES, T. C. (II) Lt., 3d Volunteer Bn., The Hampshire Regt., British Army, Mch. '17—'19 (not mobilized); Director, Sect. of Shell Contracts, British Ministry of Munitions of War.
- FERGUSON, J. N. (I) Comm. on Waterways and Public Lands; Engr. in charge of cons., Commonwealth Dry Dock and Pumping Station.
- GAINES, ELIZABETH V. (IX) Mgr. of plantation, Saxe, Va., produced annually 4000 lbs. of pork and 2250 bu. of corn; Chairman, Charlotte Co. Relief Assn. for War Orphans of Allies.
- GARDNER, J. H. (II) Member, Comm. in charge of inspection, reporting on available places for bases and sub-bases for Coast Patrol, 3d Naval Dist., Navy Dept.; Member, Bd. of Surveys and Consulting Engrs. of U. S. Shipping Bd. in charge reconditioning and putting in commission the German and Austrian vessels taken over by Bd.; Special Representative to the Peruvian Govt., charged with examination and appraisal of all enemy tonnage in Peru and negotiations with the Peruvian Govt. for taking over said tonnage; in general charge of repairing and putting vessels in commission for U. S. Service. (Page 247.)
- GILKEY, R. W. (II) Member, Draft Bd. No. 43, New York City, Dec. '17 to end of war.
- GREENLEAF, L. S. (VI) Sec., Albany Co. Red Cross; Vice-Pres., Manning Abrasive Co., Inc., producing sandpaper, flint, and emery cloth for War and Navy Depts.
- HAVEN, G. B. (II) Prof. of Machine Design, M. I. T., made several thousand tests for Govt. to determine the tensile strength of fabrics, such as khaki, gun straps and webbing; instructor in eleven schools for aviators along the line of wing fabrics. (Pages 27 and 327.)
- HICKS, E. F. (V) Chief Chemist, Victor Talking Machine Co., Camden, N. J., classified as Naval Aircraft Factory.
- HOLDEN, F. H. (IV) engaged in hospital designing, War Industries Bd.
- HOPEWELL, C. F. (VI) Mfr. of automobile specialties, furnishing data to Bu. of Standards regarding carburetors; maintained a dynamometer laboratory working on airplane carburetors.
- HOWLAND, F. S. (I) Treas., Athens Shipbuilding Corp., mfg. 4000 emergency life rafts for army transport service, over 6000 elliptical life floats for Navy, and life boats.
- HUBBY, R. G. (IV) Q. M., Hollywood Officers' Training School, Los Angeles, Calif., in charge of layout of camp and construction of buildings, Jan.—Sept. '18.
- JENCKES, E. S. (II) Vice-Pres., Joseph Bancroft & Sons Co. of Pa., Reading, Pa., mfg. cloth for Govt.
- JENNEY, WARREN (II) Office Supt. and Chief Accountant, W. F. Kearns Co., constructing Boston Army Supply Base; Office Supt., Aberthaw Construction Co., constructing Destroyer Boat, Squantum, Mass.
- JOHNSON, C. H. (I) Foreman, Public Works, U. S. Naval Station, Guantanamo Bay, Cuba.
- KING, W. H. (IX) Asst. Corp. Counsel, Law Dept., New York City, working on questions concerning properties acquired or used by the national government in war work, water grants for shipping, warehouses, and hospitals.
- LACOUNT, H. O. (II) Engr. and Asst. Sec., Inspection Dept., Assoc. Factory Mutual Fire Ins. Cos., Boston, Mass., having general supervision of the Factory Mutual Laboratories and the inspection service of the department inspecting munitions and other government plants.
- LA MOTTE, ARTHUR, Asst. Supt., Finishing Dept., Carney's Point Smokeless Powder Works, E. I. du Pont de Nemours & Co.
- LAWRENCE, C. M. (VI) Member, Community Labor Bd., representing the business men of Boston.

REGISTER OF CIVILIAN RECORDS

- LOVEJOY, F. W. (X) General Mgr., Mfr. Depts., Eastman Kodak Co., Rochester, N. Y. (Page 59.)
- McKIBBEN, F. P. (I) Supervisor of Technical Training, U. S. Shipping Bd., Emergency Fleet Corp., training naval architects.
- MANN, F. M. (IV) Prof. of Architecture, University of Minnesota; Inst., S. A. T. C.
- MARVELL, E. I. (II) Traveling Engr., U. S. Shipping Bd., Emergency Fleet Corp.
- MEADE, C. A. (I) Vice-Pres., E. I. du Pont de Nemours & Co., Wilmington, Del. in charge Miscellaneous Mfg. Dept.
- MOORE, L. R. (V) engaged in laboratory work to enable gas companies of Massachusetts to save their light oils for govt. use.
- NASH, L. R. (VI) Public Utility Expert with Stone & Webster, Boston, Mass.; Technical Adviser, Fuel Adm.; Examiner, War Finance Corp.
- NEWBEGIN, P. C. (I) Maintenance Engr., Bangor & Aroostook R. R., U. S. Railroad Adm. (Page 312.)
- NISBET, J. L. (V) General Agent, Georgia, Fla. & Ala. Railway Co., Tallahassee, Fla.; Sec. and Treas., J. P. Williams Land Co., getting out big timber for U. S. Shipping Bd.
- NOWELL, J. C. (VI) Vice-Pres. and General Mgr., The Pacific Telephone & Telegraph Co., San Francisco, Calif.; Member, committee of organization of first Officers Training Camp; Member, Comm. of Military Training Camps Association, examining candidates for F. A. Cent. Off. Tr. Sch., Camp Taylor, Ky.
- OWEN, GEORGE (II) Liberty Shipbuilding Co. (Pages 36 and 393.)
- PATRICK, A. L. (X) Member, Dist. Bd. No. 2, Selective Service, Northern Dist. of Ohio, Cleveland, Ohio.
- PEABODY, SUSAN W., Chairman, College Club Red Cross Auxiliary, Chicago, Ill.
- PIPER, W. E. (V) Chief, Rubber Goods Branch, Clothing and Equipage Div., in office of Q. M. General, purchasing all rubber footwear for Army, 14 Feb.—16 Nov. '18; Chairman, Melrose (Mass.), Fuel Comm., Oct. '17—Feb. '18.
- POLLOCK, C. D. (I) Project Engr., U. S. Housing Corp., U. S. Dept. of Labor, 27 July '18; U. S. Shipping Bd., Emergency Fleet Corp., 17 Aug. '18—2 Sept. '19.
- PRATT, W. H. (VI) Chief Designing Engr., General Electric Co., Lynn, Mass., supervising mfr. of a large variety of special and standard instruments used in all branches of govt. service.
- PRICE, R. B. (X) Treas., Conference Comm. on National Preparedness, New York City. (Pages 58, 65 and 66.)
- REED-HILL, WILLIAM (IV) Navigation Inspector and Instructor in Piloting and Navigation, Bu. of Navigation, Dept. of Commerce, Detroit, Mich.; Chairman, Bd. of Instruction and Examination, Dist. No. 10, U. S. Power Squadrons, Auxiliary of U. S. Navy, '14.
- REYNOLDS, R. D. (II) with B. F. Sturtevant Co., Hyde Park, Mass., mfg. apparatus for destroyers and submarines, munition factories and chemical plants.
- RICHARDS, D. W. (II) Signal Engr., Norfolk & Western R. R., Roanoke, Va.; Supt. Telegraph and Signals, Virginian R. R. (Page 312.)
- RICHARDS, T. G. (II) Chairman, Fuel Comm., and W. S. S. Comm., North Brookfield, Mass.
- ROBB, A. G. (II) Chief Engr., Robb Engineering Works, Ltd., Amherst, N. S., mfg. high explosive shells, shrapnel shells and marine engines for French, British and U. S. Govts.
- ROBESON, A. M. (VI) in charge of design and construction of acid explosives and poison-gas plants, British Ministry of Munitions, Dept. of Explosives Supply, Nov. '15 until end of war.
- SAVAGE, S. A. (II) U. S. Lighthouse Service until 1 July '18; General Supt. Winnisimmet Ship Yard, Inc., Chelsea, Mass., repairing ships for U. S. Shipping Bd.
- SAWIYER, MABEL WARREN (Mrs. C. W.) (IV) assisted in Tech Work Room, M. I. T. War Service Auxiliary.
- SCHERTZ, F. A. (III) Chief Chemist to Inspector of Engr. Material, Bu. of Steam Engr., U. S. N.
- SHERMAN, G. W. (X) Pres., Akron Industrial Salvage Co., a company founded for co-operative handling of waste from 120 local industries in the interest of conservation; Member, Council of National Defense. (Page 308.)
- SHURTLEFF, A. A. (II) Town Planner, U. S. Housing Corp., and U. S. Shipping Bd.
- SPERRY, AUSTIN (II) Naval Architect and Engr., Main Iron Works, San Francisco, Calif., building and installing machinery in steamers for the Emergency Fleet Corp.
- TABER, G. A. (I) Statistical Expert, in charge Artillery Branch No. 2, Progress Sect., Estimates and Requirements Div., Ord. Dept., 8 May '18—1 Jan. '19. (Page 260.)
- TAYLOR, GEORGE (II) Pres., Taylor Machinery Co., Boston, Mass., producing metal working machinery used directly and indirectly for manufacture of war material.
- TENNEY, A. B. (II) Toluol Expert, Ord. Dept.; Member, District Bd. No. 5, Mass Selective Service. (Page 4.)
- THROPP, J. E., JR. (III) Blast Furnace Supt., E. J. Lavino & Co., Marietta, Pa., American Rolling Mill Co., Columbus, Ohio, making ferro manganese, spiegeleisen, and basic pig iron for making munitions.
- TRACY, A. M., Civilian Service in Cons. Div., Q. M. Dept.
- WARREN, H. E. (VI) Consulting Engr., Lombard Governor Co., designing hydraulic lather used in manufacture of shells; designed, improved and assisted in testing firing mechanisms for big guns; assisted in construction special valves for nitrate plant and new types of hydraulic shell forging machines.

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- WASON, RIGBY (VI) Prisoner, Marionbad, Austria, Aug. '14; interned but released on parole; Sgt., Hq. Central Detachment, Metropolitan Special Constabulary, London; worked for Y. M. C. A. at London Bridge and Ciro, receiving order of the Red Triangle and three bars.
- WEIDINGER, A. E. (IV) Architect, Cons. Staff, Planning Div., Gas Defense Plant, L. I. City, C. W. S.
- WELLS, LOUISA A., worked for Belgian and French Relief Societies, Dec. '14—May '17; Red Cross, May '17—Oct. '18.
- WESTON, R. S. (V) Project Engr., U. S. Housing Corp.; Consulting Engr., Yorkship Village Project, Emergency Fleet Corp.
- WHEELER, M. M. (I) General Mgr., Kentucky Midland Coal Co., Kentucky Midland Railroad Co.
- WHEILDON, W. M. (II) Chief Designer, Angier Chemical Laboratories, Framingham, Mass.; engaged in experimental work on development of "all paper" bales, at govt. request; designed and built first power belt loading machine, operated at the New Haven Plant of the Winchester Co.
- WHITON, C. G. (XIII) Member, Recruiting Comm. for Naval Reserve Force at outbreak of war; Enrolling Agent for shipyard workers New Bedford, Mass., and vicinity; Member, Comm. of One Hundred, New Bedford.
- WOOD, K. F. (II) organized and operated five plants for purification of cotton linters for nitrating uses; Member, R. I. Advisory Council of U. S. Employment Service.

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- ADAMS, BENJAMIN (VI) Dist. Mgr., American Blower Co., Philadelphia, Pa., handling output for war industries.
- ALDEN, E. C. (VI) Capt., Home Defense Unit, 23d Precinct, N. Y. City; Inst., N. Y. State Military Training Comm. for employees of Pratt & Whitney Co.; Inst., Governor's Island and 69th Regt. Armory.
- BADGER, E. F. (V) Chemist in charge of Experimental Filtration Station, Milwaukee Water Works.
- BALLOU, L. W. (II) with Guerin Spinning Co., Woonsocket, R. I., making silk cartridge bag material to contain big gun charges of smokeless powder.
- BARROWS, H. K. (I) Project Engr., U. S. Housing Corp., Portsmouth, N. H.
- BARRY, E. D. (XIII) Supt., Universal Portland Cement Co., mfg. portland cement for direct and indirect war work.
- BOWEN, KATE A. (VIII) volunteer work in two war relief societies.
- CARR, R. W. (III) Pres., Carr Coal Co. and Rockdale Consolidated Coal Co., San Antonio, Texas; Vice-Pres. Colorado Mining Co., mining and distributing coal for essential industries.
- CLAPP, E. H. (X) Rubber Mfr. producing rubber for army blankets and trench boots; engaged in building plant for poison gas; Member, one of U. S. Employment Boards furnishing men to different war industries.
- CLAPP, S. K. (I) Scoutmaster, Boy Scouts, Grand Gorge, N. Y., assisting in Liberty Loan Campaigns and other war drives.
- CLARK, C. H. (XIII) Marine Surveyor in connection with shipbuilding program.
- COBURN, A. S. (III), Subinspector of Cons., U. S. Navy Dept.; Bu. of Cons., Philadelphia; Erector, American International Shipbuilding Corp., Hog Island, Pa.
- COOKE, J. W. (Williamson) (VI) Storage Battery Engr., Electric Boat Co. of Groton, Conn., mfg. submarines. (Page 494.)
- CRAFTS, W. N. (III) Asst. General Supt., British Forgings Ltd., built and operated by Imperial Munitions Bd., mfrs. of electric steel for ammunition at the rate of about 4000 tons per day; forged 8000 to 10000 6" shells per day, and 2000 to 3000 9.2" shells per day.
- CRANE, H. M. (II) Vice-Pres. and Chief Engr., Wright Martin Aircraft Corp.; Chairman, Liberty Engine Test Comm., Aircraft Bd.; Liberty Engine Comm., Dept. of Aircraft Production. (Page 368.)
- DORRANCE, J. T. (V) Pres. and General Mgr., Joseph Campbell Co., Camden, N. J., producing canned food for the Army; U. S. Food Adm.
- DRAPER, F. W. (III) Special Agent of State Dept. in Russia. (Page 348.)
- DYER, JOHN, JR. (IV) Office Mgr., Holler-Davis-Flood Co., building concrete barges for U. S. Railroad Adm.
- EMERY, JESSIE F. (VII) organized Ward 13, Boston, in Hoover Food Registration, July '17; Food Price Reporter, Sept. '17—Jan. '19; organized Wards 12 and 13 for War Saving Stamps Campaign; worked with Technology War Service Auxiliary.
- FAXON, F. E. (II) Supervising Inspector, Inspection Div., Ord. Dept.
- FISH, M. L. (VI) Pres., Buffalo Sheet Metal Works, Inc., engaged in almost 100% war work including work in aviation, shell and shipbuilding plants.
- FITZGERALD, F. A. J. (VI) Pres., FitzGerald Laboratories, Inc., Niagara Falls, N. Y., Consulting Engineers in metallurgical problems; engaged in design, construction and operation of electric furnace plants for manufacture of ferro-alloys; also did experimental research on materials used in mfr. of war gases.
- GREEN, F. C. (XI) Examiner, Naval Consulting Bd.
- GURD, J. A. (IV) Supervisor of Cons., Eastern Dept., Y. M. C. A., 1 May '18—1 May '19.

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- HALL, W. T. (V) Assoc. Prof. of Analytical Chemistry, M. I. T., Inst., S. A. T. C. and S. N. T. C.; analyzed cartridge brass for the Inspectors of the Russian Govt.; performed chemical analyses for the U. S. Govt.
- HAVEN, H. M. (II) Member of firm, H. M. Haven & W. W. Crosby, Boston, Mass., engineers and architects for power plants for textile mills, and tin smelting plants producing material for the Army and Navy.
- HOWARD, L. F. (VI) Chief Engr., Union Switch & Signal Co., Swissvale, Pa., mfg. equipment for railroads.
- HOWE, G. E. (I) Mgr., Lyon & Greenleaf Co., Ligonier, Ind., flour millers; Member, Milling Div., U. S. Food Adm. (Page 313.)
- HUMPHREYS, JAMES, Dept. Mgr., H. W. Johns-Manville Co. of Mass., executing large contracts with War and Navy Depts.
- HUNT, S. P. (VI) Expert Mechanical Aid, Bu. of Yards and Docks, Navy Dept.; Supervising Electrical Engr., Washington, D. C. Navy Yard.
- HUXLEY, E. H. (II) Pres., U. S. Rubber Export Co., Ltd.; Chairman, Foreign Trade Div., War Service Comm., Rubber Industry; Chairman, Advisory Comm. on Latin-American Matters, Comm. on Public Information; Chairman, Field Comm., War Service Comm., Tenafly, N. J.; Member, Bd. of Military Instruction, Local Draft Board, Englewood, N. J.; Member, Comm. on Exports Control, National Foreign Trade Council. (Page 4.)
- KEMBLE, P. H. (XIII) Asst. Chief of Sea Service Bu., U. S. Shipping Bd., 5 Nov. '17—Mch. '18. See Military Record.
- LITTLEFIELD, C. E. (Sp. II) Inst., Mech. Engr., M. I. T.; Inst., U. S. School of Military Aeronautics, M. I. T.
- LORING, E. J. (IV) Mech. Engr., Bu. of Mines, Helium Gas Investigation, 1 Oct. '17—1 May '18. See Military Record.
- MARMON, W. C. (II) Pres., Nordyke & Marmon Co., Indianapolis, Ind., mfrs. of aviation motors.
- MASTERS, F. B. (II) Camouffeur, U. S. Shipping Bd., New York Harbor, June '18; 4th Dist. Hq., Jacksonville, Fla., July—Dec. '18.
- MATTHES, F. E. (I) Geologist, U. S. Geological Survey, Dept. of Interior; translated from the French, "Manual of the Artillery Orientation Officer." (Page 272.)
- MATTHES, G. H. (I) Engr., Miami Conservancy Dist., Dayton, Ohio, protecting district against floods.
- MAY, E. B., Inst., Townsend Industrial School, Newport, R. I.
- MILLER, F. T. (XIII) Special Agent, U. S. Dept. of Labor. (Page 341.)
- MOORE, J. D. (II) Production Mgr., U. S. Shipping Bd., Emergency Fleet Corp., supervising production of deck machinery and engine room auxiliaries for all wood ships and certain steel ships; maintaining fuel supply of shipyards.
- MOREY, RICHARD (I) Member of firm, Morey & Thomas, St. Louis, Mo., contractors for U. S. Shipping Bd., Emergency Fleet Corp.
- NAY, I. A. (II) Chairman, Publicity Comm., Red Cross Drives.
- NOBLE, W. E. (I) Assoc. Member, Legal Advisory Bd., Draft Service.
- PARKER, C. H. (II) Member, Naval Comm. of Mass. Public Safety Comm.; Supt. Generating Dept., The Edison Electric Illuminating Co., furnishing electricity to Watertown Arsenal, Victory Shipbuilding Plant at Squantum and other mfg. plants; Chief, Naval Bu. in charge of Naval Militia affairs of Mass. (Page 59.)
- PARMELEE, C. L. (I) (XI) Consulting Engr., U. S. Fuel Adm., Oil Div. See Military Record.
- PATTEN, W. F. (VI) Telephone Engr., Bell Telephone Companies.
- REED, W. W. (VI) Electrical Engr., Bu. of Yards and Docks, Navy Dept.
- RICHARDS, F. L. (X) Visiting Engr., U. S. Fuel Adm., Conservation Dept. for Mass.; Mech. Engr., Densmore & LeClear, engineering work, mechanical equipment of the Prisoners' Camp, Portsmouth Navy Yard, and temporary storage warehouses at Boston Army Base.
- RICKEY, W. J. (II) Managing Director, the Singer Mfg. Co., Ltd., Clydebank, Scotland, controlled by Ministry of Munitions, Admiralty, and Air Ministry, for production of munitions for British Govt.
- ROURKE, L. K. (I) Consulting Engr., Supt. of Mines and Resident Engr., Chile Exploration Co., at Chuquicamata, Chile, mining copper ore and mfg. electrolytic copper, Sept. '16—Oct. '19.
- SCHMITZ, F. C. (I) General Mgr., California Loading Co., under Ord. Dept., loading French fuses, boosters, hand and rifle grenades and bouchons, 14 Oct. '18.
- SHERIDAN, R. B. (XIII) Vice-Pres., American International Corp., New York City.
- SHERMAN, J. C. (VI) State Mgr. of Publicity for Maine, War Savings Comm., U. S. Treas. Dept.
- SMITH, H. E. (VI) Asst. Engr., Dept. of Water Supply, Gas and Electricity, New York City.
- SWIFT, R. W. (II) Treas., Solvay Process Co., Syracuse, N. Y., mfg. caustic soda for munitions, and for making hydrogen for dirigibles; Chairman, Finance Comm., Syracuse Chapter, Red Cross.
- SWIFT, W. E. (I) Supervising Cons., Camp Merritt, N. J., 16 Oct. '17; Supervising Cons., Port Newark, N. J., 15 Jan. '18; Chief Engr., Mason & Hanger, contractors for Govt. Explosives Plant, Nashville, Tenn., 9 Feb. '18; Supervising Engr., Explosives Plant, "C," Nitro, W. Va., 15 Mch.—13 July '18. (Page 363.)

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- SWOPE, GERARD (VI) Asst. Director, Purchase, Storage and Traffic Div., General Staff, War Dept. Distinguished Service Medal. (Pages 141 and 309.)
- THOMAS, J. W. (II) Engr., with United Gas and Electric Engr. Corp., New York City, furnishing power and light from public utilities for Camp Pike, Ark., and Pteric Acid Plant at Little Rock, Ark.
- THORNDIKE, S. H. (I) Consulting Engr., and partner, Fay, Spofford & Thorndike, supervising engrs., Boston Army Supply Base. (Page 322.)
- TUCKER, E. A. (I) Pres., Edward A. Tucker Co., furnishing needed material to Govt.; Member of War Service Comm. in the Building Trades Div.
- *TURNER, H. K. (IV) Organizer and General Sec., Children of America's Army of Relief, affiliated with New England Belgian Relief Fund and later merged with Junior Red Cross. Died. 8 June '18.
- WATKINS, W. II. (V) Head of Laboratories of dye application, National Aniline & Chemical Co., Inc., producing dyes for use of Army and Navy.
- WELLING, G. B. (X) Food Administrator, Bennington Co. (Vt.) State Food Adm.
- WHORF, H. C., Publicity Mgr., Winthrop Branch, Boston Chapter, Red Cross; designed life-size soldier posters used in New England Victory Loan Campaign; organized and staged pageant, "America in the World War."
- WOLF, J. H. G. (I) Consulting Engr., U. S. Navy Dept. on Naval Petroleum Reserves of Calif. and Wyo.; offered Commission of Maj., Engr. R. C., summer '17, but did not accept on account of civilian work for Navy Dept.
- WOODS, F. A., (VII) Collaborator, U. S. Dept. of Agriculture; published book, "Is War Diminishing?" exposing fallacies of the pacifists. (Page 4.)
- WRAY, C. F. (II) Sec. and Treas., National Brass Mfg. Co., Henry Wray & Son, Inc., Rochester, N. Y., mfg. valves and lubricating devices for Ordn. Dept.
- YODER, L. K. (II) Supt., Shops and Foundries, Jones & Laughlin Steel Co., South Side Works, Pittsburgh, Pa.; engaged in plant building and maintenance in the mfr. of shell and detonator steels.

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- ALLEN, M. W. (I) (VIII) Chairman, Local Draft Bd., Detroit, Mich.
- AMES, BUTLER (IV) Brig.-Gen. and Organizing Head, Mass. State Guard.
- BALDWIN, H. S. (II) Dept. Engr., Automotive Dept., General Electric Co., Lynn, Mass., specializing on war problems in conjunction with various departments of the Army and Navy, involving electric field lighting sets, searchlights, tanks, airplane magnetos, ship propulsion, gearing, and similar problems. (Page 402.)
- BARTLETT, F. W. (XIII) Pres. and Treas., Bartlett Vacuum Jar Co., Belleville, N. J., mfg. high thermal insulation containers for technical work in developing the wireless telephone and telegraph "Audion." (Page 405.)
- BEAMAN, D. W. (VI) Supt., New Bedford Gas & Edison Light Co.
- BEAN, ELIZABETH W. (VII) volunteer worker for Red Cross.
- BIGELOW, C. W. (II) Representative, U. S. War Trade Bd., American Embassy, London, 9 July '17—Dec. 18.
- BOARDMAN, H. S. (I) Dean, College of Technology, University of Maine, engaged in S. A. T. C. instruction.
- BRAGG, E. M. (XIII) Professor, Naval Architecture and Marine Engr., University of Michigan, experimenting on forms for merchantile and naval ships in the naval experimental tanks at the University.
- BREED, L. B. (VI) Electrical Engr., Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pa., working on dynamotors for wireless field sets and wind driven generators for use on airplanes for wireless telephone and telegraph work.
- BROOKS, J. F. (II) Member, Public Safety Comm. of Hanover, Mass.
- BUCHER, R. S. (IV) Chairman, Ex. Comm., Red Cross, Harrisonburg, Va.
- BURGESS, G. K. (VIII) Chief, Div. Metallurgy, War Industries Bd., Requirements Div.; Bu. of Standards, Dept. of Commerce; Member of Foreign Services Comm. of National Research Council, abroad, acquiring information as to use of scientific men and military applications of science, Apr.—Aug. '17. (Page 310.)
- CABOT, SEWALL (VI) Research Engr., Cutting & Washington, mfrs. of radio apparatus.
- CALLAN, J. G. (VI) Prof., Steam and Gas Engr., University of Wisconsin; Member, War Comm. and Comm. on Military Adm., University of Wisconsin, '16—'18; Consulting Engr., in England and Scotland, Nov. '17 Jan. '18; reporting on Still-Acland engine as a prime mover for ships to American International Shipbuilding Corp. and U. S. Shipping Bd.; Consulting Engr. C. W. S.
- CANNON, L. T. (IV) Member, County Comm. of Public Safety, Salt Lake City, Utah.
- CHENERY, W. H. (IV) Camp Librarian, American Library Assn., War Dept. Comm. on Training Camp Activities, Camp Pike, Ark., Camp Greene, N. C., and Camp Dodge, Iowa.
- CLARY, J. W. (XIII) Asst. Chief Draftsman, Bu. of Cons. and Repair, Navy Dept.
- CLUETT, A. E. (VI) Fuel Adm., for Rensselaer Co., New York City, 20 Oct. '17; Member, Ex. Comm., N. Y. State Fuel Adm., in charge of seventeen counties in eastern and northern N. Y., Aug. '18—28 Feb. '19.
- COOLIDGE, W. D. (VI) Asst. Director of Research Laboratory of General Electric Co., Schenectady, N. Y., working on special X-ray apparatus for Army and devices for submarine detection for Navy. (Page 277.)

REGISTER OF CIVILIAN RECORDS

- CRAMER, E. C. (IV) worked in an ammunition factory for three months; State Director, United War Work Fund for ten months, Milwaukee, Wis.
- CROSBY, R. W. (XIII) Supt., Kingston Shipbuilding Corp., Kingston, N. Y.; started with the old Rondant Coal Dock as foundation and developed a wooden shipyard with three sets of ways to build Ferris type of 3500-ton ships for U. S. Emergency Fleet Corp.
- DANIELS, ADA E. (VII) Supervisor of Cooking, Hartford (Conn.) Dist. Schools, teaching food conservation.
- DANIELS, N. H. (VI) Chairman, Local Fuel Comm.; Treas., Local Comm. on Public Safety, Bedford, Mass.
- DELONG, H. W. (XII) General Storekeeper, Bath Iron Works, Ltd., Bath, Maine, furnishing material during construction of torpedo boat destroyers. (Page 383.)
- DICKINSON, L. P. (VI) Inst. in electrical work, Vocational Unit (Class B) R. I. State College; Building Sec., Y. M. C. A., Oct. '18—July '19.
- DODD, HELEN CHAMBERLAIN (Mrs. W. S.) (IV) State Chairman, Vermont Women's Land Army, fall of '18; assisted in farm organization work.
- DORRANCE, W. T. (I) Chief Draftsman, N. Y., N. H. & H. R. R., New Haven, Conn.
- DRUM, A. L. (VI) Consulting Engr. on local passenger transportation, Bu. of Industrial Housing and Transportation, U. S. Housing Corp., U. S. Shipping Bd. (Page 337.)
- EATON, JAMES, Inst. of Machine Work, S. A. T. C., University of Vermont, Burlington, Vt.
- FIELD, W. E. (IV) Engr. and Supt. of Cons., Q. M. Office, Coast Defense of Boston, Aug. '17; Supt. of Cons., Q. M. Office, Dept. of Northeast.
- FISHER, ELIZABETH F. (XII) Prof. of Geology and Geography, Wellesley College; lectured almost continually on "Conservation of Our Natural Resources" for Comm. of National Defense in Salem, for University Extension, Boston, and other organizations.
- FISK, H. G. (IX) Chairman, Dist. Bd. No. 1, Mass. Selective Draft; Chairman, Food Production and Conservation Comm., Springfield, Mass.; Public Safety Comm.; Trustee, Springfield War Chest Fund.
- FREEDMAN, L. A. (VI) Pres., Technology Sales Co., Inc., New York City, purchasing and shipping supplies to Allies, especially Italy.
- FULLER, M. L. (XII) Chief Geologist, Sun Co., Philadelphia, Pa., in charge explorations for petroleum in co-operation with the Govt.
- FULLER, R. L. (IV) Representative for Bethlehem Steel Corp., and Safety Supt., U. S. Housing Corp., working at Quincy, Mass. 15 Sept. '18—June '19.
- GIBSON, C. H. (IV) Pvt., O. R. C., 1st Training Regt., Plattsburg, N. Y., '15; promoted campaign for national defense and establishment of Military Training Camps for O. R. C.; Speaker on national defense in Mass., '15—'17; Member, Military Training Camps Assn., National Allied Relief Comm., National Security League, Navy League of U. S.; assisted War and Navy Depts. Comm. for War Camp Community Service, '17—'18; Asst., Red Cross Recruiting Office, Foreign Transportation Dept., '18; voluntary service to military authorities in preparation of Harbor Defenses, Boston, Mass., '16. (Page 4.)
- GRUSH, H. G. (VI) Asst. Engr., New England Telephone & Telegraph Co., Boston, Mass., supervised work of connecting submarine cables to lighthouses in Boston Harbor to provide telephone service; also similar work to provide telephone service to guard ship moored off Deer Island in Boston Harbor; supervised work of connecting submarine cables off Nahant in connection with research work by Western Electric Co. for the development of submarine detection.
- HALL, G. C. (VI) Electrical Engr., Motive Power Dept., Interborough Rapid Transit Co., New York City, in charge of the plans and installation of the electrical equipment in the power stations and sub-stations necessary for the operation of the new subway lines.
- HARRINGTON, JOSEPH (II) Adm. Engr., U. S. Fuel Adm., in charge of work of coal conservation in the industrial power plants of Illinois; classified, indexed, and rated 13,000 plants, and perfected a state-wide organization for increased economies in the use of coal; Vice-Pres., James A. Brady Foundry, Chicago, Ill., which produced castings to the extent of 100% of the foundry capacity, especially machinery for the Emergency Fleet Corp.
- HASTE, J. H. (V) Mgr., Kodak Park Works, Eastman Kodak Co., Rochester, N. Y., mfg. cellulose acetate, used by the Bu. of Aircraft Production in the mfr. of aeroplane varnish and photographic supplies.
- HAYWARD, H. W. (X) Inst., Naval Aviation Detachment, M. I. T., giving special work to men being trained as inspectors in the naval air service; Inst., courses for army and navy aeronautical engs.; Consulting Engr., Aircraft Production Bd.; tested materials for Bu. of Cons. and Repair of Navy and many divisions of Army. (Pages 26 and 327.)
- HEDGE, W. R. (IX) Member, Advisory Bd. of Three, U. S. Shipping Bd., in regard to insurance and sinking fund maintained by Bd.; Advisory Comm. of Three, known as Marine and Seamen's Div., Bu. of War Risk Insurance; Chairman, Liberty Loan, Fire, Marine and Casualty Insurance Comm. at Boston.
- HENRY, R. C. (IV) Asst. to Night Supt., Bethlehem Shipbuilding Corp., Destroyer Plant, Squantum, Mass., supervising general completion of unlaunched hulls aft of boiler room bulkheads, particularly shell and deck plating, its assembly, bolting, riveting and caulking, prior to water and oil pressure tests. (Page 383.)
- *HEWETT, JOSEPH (VIII) General Supt., Asst. Treas. and Sec., E. E. Taylor Co., Brockton, Mass., mfg. boots and shoes for the Army and Navy and for the Allies. Died, 14 Dec. '19.

TECHNOLOGY'S WAR RECORD

- HEWINS, G. S. (I) Chief Engr., British Chemical Co., Trenton, Ont. (Munition Plant) in charge of construction of plant with units for nitric and sulphuric acid, T. N. T., gun cotton, and smokeless powder; Mgr., Newington Shipyard, Portsmouth, N. H., engaged in building new shipyard and completing fifteen Ferris Type wooden steamers for U. S. Shipping Bd.
- HOPKINS, J. C. (IV) Architect, U. S. Shipping Bd., Emergency Fleet Corp., Housing Div., engaged in town planning at Portsmouth, N. H.
- HOWE, J. L. (V) acted as Special Comm. on platinum, of the Chemical Comm. of the National Research Council, keeping track of platinum situation; Vice-Pres., Rockbridge Co. (Va.) Chapter, Red Cross. (Page 368.)
- HOWE, J. M. (I) Consulting Engr., Horton & Horton, Gulf Coast Irrigation Co., Texas Gulf Sulphur Co., Houston, Texas, building and maintaining roads to and in Camp Logan and Camp Ellington; increasing sulphur output for munitions.
- HURD, BENJAMIN (VI) Sec. and Vice-Pres., Susquehanna Silk Mills and Pres. of the Madison Silk Co.; created Home Guard Unit in Nutley, N. J., '17; created Defense League of N. J., a state organization which enrolled Home Guard Units totalling over 20,000 men; originated the "war chest" idea and the Nutley Patriotic Fund, Inc.; organized a counter-espionage service in the state, for the Dept. of Justice; commissioned Capt., Inspector-General's Dept., State of N. J. Served as Asst. to Camp Inspector.
- HYDE, C. G. (XI) Member of a board of three engineers to design and supervise construction of sanitary works at Camp Fremont, Calif., in '17. See Military Record.
- INGALLS, C. H. (VI) Meter Engr., The Edison Electric Illuminating Co., of Boston, in charge of company's 125,000 meters.
- JONES, T. I. (VI) Chairman, Comm. on Food Protection, U. S. Food Adm., inspecting the personnel of all food storehouses in search of alien enemies and insuring protection from fire, explosion, or enemy devaluation of any kind; inspecting foodstuffs for harmful ingredients; in charge of electrical industries of Kings County, N. Y., in the 2d and 3d Liberty Loans. (Page 313.)
- KNIGHT, J. H. (IX) Assoc. Member, Legal Advisory Bd., Dist. 23, assisting draft registrants in preparation of papers required under Selective Service Act; Sec. to Member and Special Asst., National War Labor Bd.
- LAWRENCE, C. E. (VI) Operative in N. Y. City, Dept. of Justice, American Protective League, investigating suspected citizens; received a special certificate for meritorious work; Pvt to Lt., Police Reserves of New York City, taking charge of street patrol in conjunction with Police Force, with special reference to strikes or mobs. (Page 351.)
- LAWS, E. H. (V) Supt., Ohio & Colorado Smelting & Refining Co., Salida, Colo.; Mgr., Northport Smelting and Refining Co., Northport, Wash., engaged in the reduction of lead ore to base bullion, distributed under the direction of the Govt.
- LEIGHTON, M. O. (VII) Washington Representative, Air Nitrates Corp., in construction of nitrogen plants at Muscle Shoals, Ala., Ancor, Ohio, and Toledo, Ohio; work included negotiation of priorities, clearances, fuel supply and transportation clearances on materials entering into plants.
- LITCHFIELD, P. W. (X) Vice-Pres. and Factory Mgr., Goodyear Tire & Rubber Co., Akron, Ohio, in charge of mfr. of dirigible and observation balloons, gas masks, and tires for motor transport; special representative of Navy Dept. to England, France, and Italy to study airship construction and operation, Nov. '18—Mch. '19. (Pages 39, 399 and 400.)
- LOCKE, C. E. (III) Assoc. Prof., Mining Engr. and Ore Dressing, and Inst., S. A. T. C., M. I. T.
- McALPINE, W. H. (XI) Asst. Engr., later Dist. Engr., U. S. Engr. Dept., in charge of Ohio River improvement, locks and dams No. 41, 43, and 48; operating and care of locks and dams, Green Baren and Rough River, Ky., and Grand Rapids and Wabash Rivers in Ind., and Ill.
- MANSFIELD, E. S. (VI) Field Sec., Industrial Comm. of Boston, United War Work Campaign; Director of Statistics, Second Red Cross War Drive, Industrial Campaign Comm.; Treas., Red Cross Christmas Roll Call, Boston Industrial Comm.
- MARBLE, L. C. (I) Civil Engr., during war engaged in repairing old or installing new equipment to increase output to meet demands of the Govt. at the mines in Ohio and West Va.
- MEAD, E. E. (VI) Sec., Asst. General Mgr., and Chief Engr., Noble Electric Steel Co., Sausalito, Calif., producing ferro-manganese and ferro-silicon by electric smelting, and mining, producing iron ore, manganese ore, chrome ore, chrome concentrates and lime rock; producing charcoal by various methods and refining of wood distillation products, acetate of lime and alcohol.
- MELLUISH, J. G., (IX) Project Engr., U. S. Housing Corp., 10 Sept. '18—1 Dec. '18. See Military Record.
- MERRELL, I. S. (II) Chairman, Local Draft Bd., No. 3, Syracuse, N. Y., served from organization till discharge of board.
- MERRYWEATHER, G. E. (II) Chief of Machine Tool Sect., Council of National Defense and War Industries Bd., Washington, D. C. (Page 310.)
- MOAT, C. P. (V) Chemist, Vermont State Bd. of Health; Inst., S. A. T. C., University of Vermont; assisted Advisory Board in laboratory work.
- MOORE, M. E. (II) Mass. Food Production Comm.; Arlington Comm. of Safety and Food Production Comm.

REGISTER OF CIVILIAN RECORDS

- MORSE, L. S. (II) Engr.-in-chief, York Mfg. Co., York, Pa., designing refrigerating machinery and auxiliary apparatus for U. S. Army and Navy, Dept. of Interior, and for corporation whose products were utilized by the Govt. in the war; directed designing of the 5000-ton beef storage plant for the A. E. F., installed at Gievres, Loir et Cher, France, and other ice-making refrigerating plants installed at training camps; devoted greater part of time to the design and improvement of carbon dioxide and ammonia compression refrigerating machines, which have been used largely by the Navy and Emergency Fleet Corp. (Page 382.)
- NEVIN, C. K. B. (IV) Asst. Civil Engr., War Dept., Sea Coast Defense, Northern New England, Cons. Div.
- NORTON, ALICE PELOUBET (Mrs. L. M.) (XI) Editor, "Journal of Home Economics"; with Food Adm., Washington, D. C.
- PARTRIDGE, W. M. (VI) invented and supervised under govt. construction "The Partridge Collapsible Hydrokite" for elevating observers, signals or wireless at sea, particularly for war vessels too small to use balloons. (Page 279.)
- PAUL, C. H. (I) Asst. Chief Engr., The Miami Conservancy Dist. (Dayton, Ohio), assuring flood protection in the Miami Valley.
- PAULY, K. A. (VI) Engr., General Electric Co., Schenectady, N. Y., assisted Ord. Dept. on special development work and machine shop equipment for France.
- PEABODY, F. R. (II) Mgr., Salvage Dept., and Idle Equipment Dept., Firestone Tire & Rubber Co., handling waste and by-products of factory; Pvt., Home Guard, Akron, Ohio.
- PERLEY, C. W. (VII) Chief, Classification Div., Library of Congress, working with American Library Assn. in selection and classification of books for camp libraries, hospitals, and U. S. Delegation to Peace Conference.
- PIERCE, M. E. (I) Sec., New England Liberty Loan Comm. of Citizens of Foreign Birth or Descent on Second Liberty Loan; Chairman, Second, Third, Fourth and Fifth Liberty Loan Auxiliary Comm., for co-operation with New England Liberty Loan Comm. of Americans of German Ancestry; Special Investigation for Boston Fuel Adm.; Asso. Member, Legal Advisory Bd.
- PINGREE, E. D. (II) Vice-Pres. and Engr., Manufacturers Mutual Fire Ins. Co., Providence, R. I., working on fire protection for munitions plants.
- SAGER, L. K. (VI) Engr., Instrument Sect., Ord. Div., War Dept., preparing War Dept. pamphlets describing cons., care and methods of using instruments for control of artillery firing and laying of pieces; Chairman, Palisade Branch of Edgewater (N. J.), Chapter, Red Cross.
- SANDERSON, N. H. (I) Estimating Engr., Boston Bridge Works, Inc., making estimates of material (structural steel) on the Victory Plant, Squantum, Mass., and Battle Cruiser Ship Shed at Fore River.
- SEARS, M. A. (III) Member, Travelling Branch, Food Adm.
- SHAW, A. V. (IV) Acid Chamber-man, American Zinc Co., St. Louis, Ill., working on U. S. Navy contracts.
- SJOSTROM, W. L., (VI) Mgr., Coburg Dyeing Co., Coburg, Ont., dyeing and finishing army cloths and blankets for Canadian, French and British Governments.
- SMITH, H. E. (XI) Div. Engr., N. Y. State Highway Comm., in charge of new cons. and maintenance of highways of six counties.
- SMYSER, A. E. (II) Engr. of Refractories, The Koppers Co., Pittsburgh, Pa., building by-product coke ovens for munitions plants.
- SPAHR, A. H. (IV) Architect in charge of Project No. 10, Erie, Pa., U. S. Housing Corp.
- STEARNS, W. M. (VI) Chairman, Elec. Heating Devices Comm., General War Service Comm., Electric Mfg. Industry, compiling data in industry for the general War Industry Bd., in order to obtain classification of Heating Device Industry for the purpose of obtaining raw material.
- STICKNEY, J. W. (VI) Supt. of Personnel, Nordyke & Marmon Co., Indianapolis, Ind., mfrs. of Liberty Motors.
- STONE, C. H. (V) Supt., in Detroit City Gas Co., Jan. '17—June '18; Mgr., Lansing Fuel and Gas Co., June '18—Nov. '18.
- STONE, ESTHER (IV) made surgical dressings for Red Cross.
- STOUGHTON, BRADLEY (III) Member, General Engr. Comm., National Council of Defense; Head of Metallurgical Div., Engr. Div., National Research Council and Vice-Chairman, Engr. Div. (Page 308.)
- STURM, M. J. (IV) Engr., Housing Corp.
- TAFT, H. S. (XIII) Supt. Cons. for G. M. Gest, New York City, building three infantry regiment cantonments, The Presidio, San Francisco, Calif., May—Aug. '17; devising and standardizing modes for the construction of concrete docks for the Bu. of Yards and Docks, U. S. Navy Dept., Aug.—Oct. '17; Gen. Mgr., in charge of const., of Dry Docks, Norfolk Navy Yard, Portsmouth, Va., Oct. '17. (Page 381.)
- THOMPSON, A. W. (II) Vice-Pres., Parks-Cramer Co., Boston, Mass., furnished fabricated pipe products to Emergency Fleet Corp.
- TOZIER, H. H. (V) Dept. Supt., Eastman Kodak Co., Rochester, N. Y., especially concerned in production of photographic paper suitable for the needs of the Army and Navy and anti-dimming coating for gas mask eye-pieces. (Page 395.)
- TROUT, C. E. (I) with Turner Construction Co., in charge of design and construction waterfront improvements at Army Supply Base, Brooklyn, N. Y.
- TYLER, L. S. (VI) Chief, Dept. of Requirements and Sub-Contracts of Region 1, War Industries Bd.

TECHNOLOGY'S WAR RECORD

- *WENTWORTH, C. A. (I) Chief Engr., The Foundation Co., engaged in cons. work for U. S., French and British Govts. including munitions plants and storehouses, steamers, and steel mine sweepers. Died, 21 Feb. '20.
- WHITING, R. S. (IV) Architectural Engr., Lumber Comm., Advisory to Council of National Defense (later merged with War Industries Bd.) (Page 308.)
- WILLIS, J. H. (IV) Architectural Squad Chief, Cons. Div., U. S. A.
- WOODSUM, A. F. (II) Machinist, 1 cl., Navy Yard, Portsmouth, N. H.
- YOUNG, C. H. (II) Washington Representative, Armstrong Cork Co., advising on insulation problems for Army and Navy.

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- ATWOOD, T. C. (I) Supervising Engr., cons. of Camp Merritt, N. J., Sept.—Oct. '17; Supervising Engr., Bu. of Yards and Docks, Squantum Destroyer Plant, Buffalo Turbine Plant, Providence Boiler Plant, and allied plants for building torpedo boat destroyers and their machinery for Navy Dept., 15 Oct. '17—1 Sept. '18; Dist. Plant Engr., in charge of all cons. and maintenance of shipyard plants in the Middle Atlantic Dist. for the U. S. Shipping Bd., Emergency Fleet Corp., 1 Sept. '18—to date (8 Sept. '19).
- BALLOU, H. W. (I) Engr. for various corporations producing War Supplies.
- BANCROFT, JOSEPH (X) Member and Sec., Local Draft Bd. No. 1, Wilmington, Del., June '17; Acting Chairman, May '18; Chairman, Aug.; Chairman, Bituminous Coal Comm., U. S. Fuel Adm.; Member, State Highways Transport Comm., State Council of Defense.
- BINLEY, WILLIAM, JR. (XIII) Asst. Naval Architect, Fore River Plant, Bethlehem Shipbuilding Corp., Quincy, Mass., supervising designs of naval vessels and troopships. (Page 383.)
- BLISS, E. P. (I) Contractor, War and Navy Dept., building piers, bulkheads, hangars and boat sheds, and dredging, mostly at Norfolk, Va.
- BLOOD, P. E. (I) Chief Draftsman and Designing Engr., The Niagara Falls Power Co., under direction of War Dept.
- BORLAND, HUGH (I) Inspector of Cons., Cons. Div., War Dept., Chicago, Ill.
- BREED, C. B. (I) Pres. of Academic Bd., U. S. School of Military Aeronautics, M. I. T. (Pages 11 and 14.)
- BROWN, J. M. (II) Chairman, Erie Co., Ohio, Inspection Bu., Fuel Adm.; Supt., The Sandusky Foundry & Machine Co., producing shaft covers and pump liners, for U. S. Shipping Bd.
- BUCK, W. F. (VI) Production Engr., Sterling Motor Co., Brockton, Mass. mfg. fuses for French 75s.
- BUELL, C. S. (II) Mgr. of a Div. in Production Dept., Ord. Dept.; Member, Claims Bd., U. S. Shipping Bd., Emergency Fleet Corp.
- CAPEN, C. A. (X) Local Food Adm., Randolph and Avon, Mass.
- CASSIDY, D. D. (IV) Mgr., Industrial Education and Industrial Labor Sections, Production Div., Dept. of the Northeast, Ord. Dept.; Investigator, Alien Property Custodian's Office.
- CLEAVES, E. E. (IV) Member, Medical Advisory Bd., Dist. 25, Commonwealth of Mass., Selective Service System.
- COLLINS, J. A., JR. (X) Asst. Supt., Mech. Dept., Arlington Mills, Lawrence, Mass., mfg. O. D. fabrics for shirts, melton for clothing, yarn for stockings and sweaters, and navy blue cloth for uniforms.
- COWLES, L. S. (I) Engr., Cons. Work, Stone & Webster, at Watertown Arsenal, Watertown, Mass., Picatinny Arsenal, Dover, N. J., Picric Acid Plant, Grand Rapids, Mich.
- CURTIS, A. V. (XIII) Dept. Cons. and Repair, Navy Yard, Washington, D. C.
- DANIELL, J. R. (XIII) Supt. Engr., for Spanish Contracts for Submarine Cons., Electric Boat Co. of Groton, Conn., in Spain from July '16—Jan. '19, enabling him to give U. S. Govt. information about activities of German submarines on Spanish coast.
- DEAVITT, H. M. (I) Director, Deavitt Laboratories, Chicago, Ill., inspecting cantonment paint, and steel used in airplane motors.
- DODGE, E. S. (IV) Member of the Mass. Emergency Hosp. Ambulance Service, '17—'18; resigned to go abroad with the Red Cross but armistice prevented departure.
- DOUGHERTY, P. L. (VI) Dist. Representative, Vice-Pres. Office, U. S. Shipping Bd., Emergency Fleet Corp. New York City. (Page 344.)
- DUNN, CHARLES (II) Member, Public Safety Comm.; Chairman, Food Comm., Lock Haven, Pa.
- DU PONT, IRÉNEE (X) Chairman, Ex. Comm., E. I. du Pont de Nemours & Co., Wilmington, Del., mfg. munitions. (Page 355.)
- EAMES, C. H. (VI) Pres., Lowell Textile School which had S. A. T. C., 15 Oct.—11 Dec. '18; Member, Billerica Public Safety Comm.
- EDMANDS, F. L. (II) Member, Legal Advisory Comm., Boston, Mass.
- ESTABROOK, H. W. (IV) Chairman, Worcester Retail Sect., all War Drives; Member, Ex. Comm., Thrift and War Savings Stamp Campaigns in retail stores; as Director, Worcester Chamber of Commerce, was an executive in organization of teams and plans of several Liberty Loan Drives.

REGISTER OF CIVILIAN RECORDS

- EWING, CHARLES (IV) Architect, for Bu. Yards and Docks, Navy Dept., and for Ord. Dept., designing and laying out cantonments, barracks and hospitals, industrial villages and laboratories at Navy Camp, Brooklyn, N. Y., Pelham Bay Training Station, Marine Barracks, Iona Island and Lake Denmark; hospitals at Grey's Ferry Road, and League Island, Pa.; industrial village, Muscle Shoals, Ala., including designs for 1500 houses, public buildings, stores, schools and utilities; hospital, laboratories, special plant bldgs. and camp for 19,000 men; workmen's camps at Nitrate Plants at Toledo and Cincinnati, Ohio.
- EWING, W. C. (VI) in charge, Div. of Complaints, Boston Dist., U. S. Fuel Adm., '17-'18; Special Expert, Div. of Planning and Statistics, U. S. Shipping Bd., Washington, D. C., 6 Apr.—1 Dec. '18.
- FEELEY, F. G. (II) Asst. Dist. Mgr., St. Louis Office, U. S. Emergency Fleet Corp.
- FIELD, D. D. (II) Mgr., Housing Operations, Chesapeake and Potomac Telephone Co., in charge of large group of out of town operators sent to Washington; recruited and trained group of operators for service in France.
- FOLSOM, H. A. (V) Production Engr., Production Div., Explosives Sect., Ord. Dept., Boston, Mass., facilitating production of high explosives, chemicals, gas-oils and gas-tar fractionates, chiefly toluol.
- FORT, J. H. (III) recruited for the 108th Infantry of the 27th Div.; Member, Local (Onedia, N. Y.) Ex. Comm., War Chest; in charge of Thrift Stamp Campaign in Madison Co., N. Y.
- FOSTER, MARY L. (V) (VII) Asst., Medical Research, Rockefeller Institute, '17; Member, War Emergency Comm., Smith College.
- GERBER, E. L. (IV) Aeronautical Designer, The Dayton-Wright Airplane Co., Dayton, Ohio, developing De Haviland-4 and U. S. D-9-A airplanes.
- GLEASON, W. A. (I) Structural Designer, Puget Sound Navy Yard.
- GOODSPEED, G. M. (V) Metallurgist, National Tube Co., McKeesport, Pa., mfg. tubular goods for war purposes, particularly gas shells.
- GRAY, O. H. (VI) Consulting Engr., Nitrates Div., Ord. Dept.; tried for Commission in Engr. C.
- HAMMOND, C. L. (I) Engr. Expert Aid, Public Works Dept., Boston Navy Yard; detailed to special duty at Squantum, Mass., Nov. '17.
- HASKINS, C. N. (VIII) Master Computer, Aberdeen Proving Grounds, Ord. Dept., working on range tables and doing experimental work.
- HATCH, G. F. Supervisor, Technical Education, Curative Workshop Instruction, Div. of Physical Reconstruction, Medical Dept.; Hosp. No. 10, 30 Apr.—24 June '19; Hosp. No 43, Hampton, Va. until 22 Aug. '19.
- HATCH, ISRAEL (X) Asst. Supt., Elgin National Watch Co., Elgin, Ill., mfg. watches for Army, fuse parts and tachometers for airplanes.
- HAWKINS, E. M. (II) Gen. Mgr., M. D. Knowlton Co., and the Auburn Ball Bearing Co., Rochester, N. Y., mfg. essentials during the war.
- HAYWARD, NATHAN (VI) Assoc. Chief, War Industries Bd., in charge of dredging on the Atlantic, Gulf and Pacific Coasts.
- HAYWARD, R. H. (VI) Chairman, 2d Red Cross War Fund Campaign, Kewanee, Ill.
- HAZELTON, I. B. (I) (VI) Marine Camoufleur, N. Y. Dist., U. S. Shipping Bd., superintending painting of camouflage designs on ships, and research on the subject of camouflage.
- HEMMINGS, F. J. (V) Chemist, Navy Yard, Boston, Mass., engaged in examination of supplies and general chemical work.
- HERING, O. C. (IV) Member, Ex. Comm., Amateur Comedy Club, Soldiers and Sailors Entertainment Fund.
- HITCHCOCK, F. S. (I) Principal, New London Vocational School; Director, Boys Working Reserve, Home Garden Movement in New London, Conn.
- HOIT, H. F. (IV) Capt., Second, Third and Fourth Liberty Loan Drives; General, United War Work Drive, Kansas City, Mo.
- HOPKINS, A. T. (XI) Mgr., Service Dept., U. S. Rubber Co., New Haven, Conn., mfg. balloons, gas masks, rubber boots, overshoes, rain coats and trench coats for Govt.
- HOSMER, G. L. (I) Inst. in Navigation, U. S. Shipping Bd., and U. S. Naval Aviation Detachment; Inst., Map Reading, U. S. School of Military Aeronautics, M. I. T. (Page 31.)
- HOWES, B. A. (VI) Consulting Engr. and Mgr. of Cons., Island Oil and Transport Corp., New Bedford, Mass.; organized, equipped, and operated shipyard to convert steel cargo vessels into oil tankers to supply oil for Navy requirements; report to Comm. on Congestion at Port of New York, outlining Emergency Cons. to relieve congestion and release shipping equipment, Feb. '18; report to Council of National Defense on concrete ships. (Page 392.)
- HUMPHREYS, WALTER (II) Lecturer on Astronomy, U. S. School of Military Aeronautics, M. I. T.; Treas., Jr. Red Cross Auxiliary of Boston Metropolitan Chap.; Registrar and Recorder, M. I. T., including S. A. T. C. (Pages 64, 66 and 68.)
- ILLSLEY, J. P. (II) New York Sales Mgr., Niles-Bement-Pond Co., until Oct. '17; in contact with ordnance projects for layout of equipment for shell plants from 7" to 12", and heavy ordnance at Watervliet Arsenal, also plants in England, France and Russia; General Mgr., Becker Milling Machine Co., Hyde Park, Mass., in charge of mfr. and sale of milling machines and cutters for ordnance works, rifle and pistol plants, since Oct. '17.

TECHNOLOGY'S WAR RECORD

- JACKSON, A. W. (IV) Representative, Civilian Personnel Div., Ord. Dept., Boston, Mass., working to secure men to take civil service examinations to fit them for special branches of industry doing govt. work.
- JACKSON, H. D. (VI) with Monks & Johnson, Boston, Mass., took charge of designing and drawing up specifications for heating plant at Chelsea Naval Hosp., Sept. '17; Asst. in charge of mechanical equipment, Squantum, Mass., Jan. '18; Colt Patent Fire Arms Co., Hartford, Conn.; Machine Shop for New Britain Machine Co.; numerous bldgs. at Watertown Arsenal; in charge of electrical and mechanical equipment, Shipyard, Alameda, Calif., June '18; Sparrow's Point Plant of the Bethlehem Shipbuilding Corp.; shipyard for building concrete ships at Charleston, S. C.
- JENNINGS, A. L. (II) Dist. Supt., Bradley & Chatman Co., Boston, Mass., applying stucco with cement guns on workmen's houses for du Pont Co., May—Sept., '18; in charge of production on contract for stream line wire fittings for DeHaviland-4 airplanes with Walden-Worcester Inc., Worcester, Sept. '18—May '19.
- KNIGHT, G. H. (II) Chief Engr., Hende Machine Co., Torrington, Conn., mfg. machine tools, including lathes, milling machines and shapers for tool room, for Govt. or for essential industries.
- LANE, G. M. (II) Member, Legal Advisory Bd., Dist. No. 7, Mass.; Capt., all Liberty Loan Campaign Teams.
- LEARNED, E. F. (VI) Mgr., Industrial Equipment Dept., Day, Baker Co., Inc., Boston, Mass., furnishing Army and Depts. with industrial equipment for handling material of various kinds.
- LOCKWOOD, R. G. (X) Asst. to Director, Department Stores, National Hq., Red Cross, Washington, D. C. handling the supply of hospital garments and surgical dressings made by Red Cross for Army through the Surgeon General's Office.
- LOOMIS, H. M. (V) Asst., Canned Foods Div., and Chief Inspector, Maine Sardine Inspection Service, U. S. Food Adm.
- LOVELAND, B. A. (I) Civil Engr., Engr. Dept. of War Dept., working on designs of fortification works.
- McELWAIN, J. F. (IX) Chairman, Comm. of Shoe and Leather Industries, Council of National Defense, 31 Mch. '17; Member, Comm. of Supplies, War Industries Bd. (Comm. later merged with Supply and Equipment Div.), Q. M. Dept., 7 Dec. '17; Acting Chief, Shoe, Leather and Rubber Goods Sect., Supply and Equipment Div., 17 Jan.—12 Apr. '18; Asst. Chief of Supply and Equipment Div., Q. M. Dept., 15 Feb.—12 Apr. '18; Chairman, War Service Comm. of Shoe Mfg. Industry of U. S., 21 Aug. '18—1 Dec. '19; Member, Comm. on Land Forces of Mass. Comm. of Public Safety, 16 Feb. '17; later served as Chairman; Member, Ex. Comm., Red Cross. (Page 310.)
- MOORE, H. K. (V) Treas., Naval Consulting Bd., N. H.; Chief Chemist, and Chemical Engr., Brown Co., Berlin, N. H., mfg. sulphur chloride for mustard gas, chloroform and paper powder containers; offered a Comm. of Maj. in C. W. S., but not allowed to accept; Member, Chemical Engr. Comm., Council of National Defense.
- MORAN, G. A. (V) Chief Chemist, Pacific Mills, Lawrence, Mass., in connection with mfg., dyeing and finishing cotton and woolen fabrics for Army and Navy.
- MORAN, J. G. (I) Member, Legal Advisory Bd., Div. No. 41, Mass.
- NICKERSON, CLARENDON (X) Mech. Ener., in charge Mill Dept., Waterbury Savill Foundry & Machine Co., Waterbury, Conn., mfg. brass for Allies and for U. S. Govt. for war purposes.
- OSGOOD, FARLEY (VI) Assoc. Member, Naval Consulting Bd.; Vice-Pres. and General Mgr., Public Service Electric Co., Newark, N. J., furnishing electric power for war industries, notably for shipbuilding and shell making in N. J.
- PETTÉE, C. L. W. (V) Analytical and Consulting Chemist, engaged in analysis and tests of material used in Govt. contracts, including pig irons, brasses, bronzes and steels. (C. L. W. Pettée's Method for analysis of Platinum Alloys was requisitioned by the Platinum Control Bu.)
- POTTER, W. C. (III) Chief, Equipment Div., Sig. Co., War Dept.; Asst. Director, Aircraft Production.
- PRATT, G. H. (V) Acting Supt., Filtration and Pumping, Montclair Water Co., Little Falls, N. J., in charge of purification of water for mfg. plants' supply and domestic use.
- PUGH, A. H., JR. (X) Head of Loading and Explosive Sect., Cincinnati Dist., Ord. Dept., 16 Aug. '18; Member, Claims Bd., Cincinnati Dist., July '19.
- RECORDS, F. B., JR. (I) Supt. of Cons. and Asst. Engr., The Bristol Brass Corp., Bristol, Conn., building an industrial village, and erecting and operating a reclaiming plant.
- REED, W. E. (VI) Consulting, Construction and Operating Engr. Consulting Engr. in charge of power plants, transmission, distribution, steam and electric drive of machinery and equipment, lighting and general engr., for three large steel plants, eight coal mines and five industrial works, one zinc co., two copper companies, one oil co., and one hydro-electric co.; in charge of purchasing, testing and approving apparatus for three French concerns making war materials abroad; specified all electrical equipment for use in a French steel mill; did development work in making refractory materials to replace German makes, and a successful substitute has been made and used; Asst., Industrial Div., Liberty Loan Campaigns.
- ROBINSON, A. E. (IV) Representative and Works Supt., U. S. Housing Corp., at Hammond and Indianapolis, Ind.; Chairman, Architects' Comm., Liberty Loan and War Activities Drives.
- ROYCE, J. C. (II) Representative at Eastern Plants, Treas. and Member Management Comm. in America, Rolls-Royce Ltd., mfg. Rolls-Royce Aero Engines in America for British Govt. (Page 372.)
- RUSSELL, W. B. (II) Field Director and Dist. Educational Director, reporting to Comm. on Education and Special Training of General Staff, War Dept., Washington, D. C., supervising vocational education of enlisted men at educational institutions; Director, Franklin Union, Boston, Mass., fitting men for Army and Navy.

REGISTER OF CIVILIAN RECORDS

- SAWTELLE, H. F. (I) Principal Asst. Engr., Fay, Spofford & Thorndike, Boston, Mass., designing and supervising Engrs., Boston Army Supply Base.
- SAWTELLE, W. O. (VIII) Asst. Physicist, Bu. of Standards, Dept. of Commerce and Labor, Haverford, Pa. (Military Research); Chairman, Haverford College Liberty Loan Comm.
- SELLEW, W. H. (II) Railroad work, U. S. Railroad Adm.
- SHARER, C. W. (X) Supt. of Equipment Dept., Keystone Telephone Co., Philadelphia, Pa., maintaining telephonic communication between constructors and govt. officers.
- SMITH, H. W. (II) Inst. in Navigation, U. S. Shipping Bd., July '17; Inst. in Navigation and Dean, Academic Bd., U. S. Naval Aviation Detachment, M. I. T., Sept. '17; Pres., Academic Bd., U. S. Naval Aviation Detachment, M. I. T., Sept. '18—Jan. '19. See Military Record and pages 4, 20, 23 and 31.
- SMITH, J. W. (XIII) General Supt., Gray & Davis, Cambridge, Mass., mfg. munitions for Govt.
- STRONG, E. F. (II) Mgr., Boston-Economy Lamp Div., National Lamp Works of General Electric Co., Providence, R. I., mfg. incandescent lamps.
- SWAN, R. A. (VII) Chief Clerk, Draft Bd., Div. 3, New Bedford, Mass.; Chief Inspector of Draft Records, in closing offices, Provost Marshal General's Office, War Dept.
- VIDETO, T. E. (IV) Asst. to Mgr., Cons. Div., U. S. Housing Corp., Bu. of Industrial Housing, Dept. of Labor. (Page 336.)
- VINAL, R. S. (IV) Civilian Inst. in Hangar, Army Aeronautical School, M. I. T., 1 Mch.—7 Sept. '18; Inst. in Hangar, Y. M. C. A. Aeronautical School, 14 Oct.—22 Nov. '18.
- WADLEIGH, G. R. (II) Dist. Mgr., Supply Div., U. S. Shipping Bd., Emergency Fleet Corp., St. Louis, Mo.
- WEYMOUTH, T. R. (VI) Director, and Chief Engr. and Mgr. of gasoline products, United Natural Gas Co., Clarion Gas Co., Pa. Natural Gas Co., Mars. Co., Pa. Oil Co., in charge of development of gasoline production from natural gas.
- WOOD, W. R. (XIII) Material Supt., Navy Yard, Mare Island, Calif.
- WOODMAN, A. G. (V) Assoc. Prof. of Chemistry of Foods, M. I. T.; consulted in connection with rationing and dietetics of the troops in cantonments.

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- ALLEN, J. R. (IV) Architect, Bu. Yards and Docks, Navy Dept., and Ord. Dept., War Dept., designing and laying out cantonments, barracks, hospitals, industrial villages, and laboratories.
- AYRES, M. V. (VI) Senior Elec. Engr. with Bu. of Valuation, Interstate Commerce Commission, until May '18. See Military Record.
- BABSON, R. W. (I) Director General of Information and Education, of the Labor Adm., Dept. of Labor, in charge of the publicity and educational work carried on by the Govt. to interest industry in the war and the Nation in industry. (Page 339.)
- BARKER, E. R. (V) Member, Toluol Comm., Technical Assn. of the Pulp and Paper Industry to determine amount of by-product toluol possible from sulphite pulp mfr.
- BARKER, HARRINGTON (II) Assoc. Member, Legal Advisory Bd., War Dept., Washington, D. C.
- BARROWS, ANNA (VII) Specialist, Home Economics extension work with women, Office of Extension Work, States Relation Service, Dept. of Agriculture, Washington, D. C.
- BLANCHARD, A. A. (V) Pvt., Mass. State Guard, performing one week's active service at the Influenza Hospital, Corey Hill, Brookline, Mass.
- BLEECKER, J. S. (II) Chairman, Red Cross Membership Drive, Columbus, Ga., '17; Muscogee Co. Chairman, War Savings Stamp Campaign; Chairman, Universal Registration; Sub-Chairman, Amer. Protective League.
- BODWELL, H. L. (II) Asst. Dist. Mgr., American Sheet & Tin Plate Co., Vandergrift, Pa., mfg. helmets, govt. kitchens, etc., for Govt.; Member, American Protective League; Member, Local Comm. of Public Safety for Westmoreland Co. (Page 367.)
- BREWSTER, WM. (II) Asst. Engr. of Roads, Aviation Field, Mineola, N. Y., Oct. '17; Asst. Engr. and Mech. Engr., in charge water layout, steam and plumbing cons., Gillespie Loading Co., Morgan, N. Y., Ord. Dept. Jan. '18.
- BROWN, D. O. (VI) Member, Conciliation and Mediation Comm., Council of National Defense; Member, Sub-Comm. of National Petroleum War Service Comm.; Vice-Pres., Tide Water Oil Co., supplying oil to Army, Navy and Allies; accepted by Y. M. C. A. to go overseas but armistice prevented going.
- BURNHAM, GEORGE (IV) Ex. Sec., Comm. of Public Safety, Cumberland Co., Maine, Apr.—Oct. '17. See Military Record.
- CHACE, I.M., JR. (I) Asst. Engr., N. Y. C. & H. R. R. R., U. S. Railroad Adm.
- CHAPIN, E. S. (V) Consulting Chemist on many dyestuffs and coloring problems of the war.
- CLEAVELAND, W. A. (II) sold disinfectants to factories producing war munitions.
- CLIFFORD, PAUL (II) Supervisor, Raw Materials, Felt Sect., Chemical Warfare Branch, U. S. A.
- COLCORD, F. F. (III) Asst. to Vice-Pres., U. S. Smelting, Refining and Mining Co., and U. S. Metals Refining Co., producing copper and lead for mfr. of munitions.

TECHNOLOGY'S WAR RECORD

- COOMBS, F. E. (IV) Supt. of Materials, William C. Hedrick Construction Co., Dallas, Texas, building Aviation Camp, Love Field.
- CURRIER, H. L. (II) Draftsman and Chargeman, Marine Engine and Boiler Dept., Navy Dept., Navy Yard, N. Y.
- DAVIS, A. L. (III) Mgr., Crucible Steel Co. of America until Oct. '17; Director of Research, Scoville Mfg. Co., Waterbury, Conn., Oct. '17; with Crucible Steel Co., worked on special steels for gun shields, field howitzers, and developed best known thin shield plate; with Scoville Co., developed annealing of safety elements for Mark III fuses, also of cupro-nickel cups for bullet jackets; later, worked on the intensive production of cupronickel and cartridge brass for delivery to various arsenals and mfg. firms; salvaged over one million pounds of supposedly unsuitable cupro-nickel and made it available for Frankfort Arsenal. (Page 367.)
- DENNIS, BERTHA E., Worker for War Activities.
- ELLIOTT, S. MARIA, Member, Savings Div., War Loan Organization, Simmons College.
- FENNER, D. C. (II) Asst. Chief., Automotive Products Sect., War Industries Bd., Washington, D. C., Sept. '18—Jan. '19.
- FLEISHER, SIMON (VI) Supervisor of Cons. and Mfr. of Curtis turbines, at Ford Plant, Detroit, Mich., for submarine chasers, "Eagles;" Member, Legal Advisory Bd., Revere, Mass.
- FRANKLIN, A. I. (V) Team Capt., Liberty Loan and War Chest Campaigns; one of founders of Home Guard, Springfield, Mass.
- GALLISON, E. A. (II) with Kalmus, Comstock & Wescott, Boston, Mass., working on submarine detection devices.
- GARY, CLARA E. (VIII) Physician, medical work for families of men in service; Buyer for the War Service Comm., Mass. Chapter, Daughters of the American Revolution; War Activities Work.
- GODBOLD, C. H. (XIII) Supervising Draftsman, Bu. Cons. and Repair, Navy Yard, Washington, D. C., supervising preparation of plans of destroyers, patrol boats, battleships, tenders, battle cruisers, and for the conversion of merchant ships to naval auxiliaries.
- GODFREY, HOLLIS (V) Commissioner of Engr. and Education, Advisory Comm., Council of National Defense; Pres., Drexel Institute, Philadelphia, Pa. (Pages 6, 306 and 308.)
- GODLEY, G. M. (III) Vice-Pres., The Linde Air Products Co., mfg. gases for industrial work, and for balloon work for the Army and Navy.
- GOLDSMITH, CLARENCE (II) Advisory Engr. on fire protection and water supply for the Cantonment Div. of the Army, 26 May '17—6 Apr. '18. See Military Record.
- GOODRICH, A. L. (X) Asst. Prof. of Drawing and Descriptive Geom., M. I. T., and Inst., S. A. T. C., M. I. T.
- GUY, J. R. (II) Member, Scientific Dept., Navy Yard, Norfolk, Va.; Supt., Norfolk Shipbuilding & Dry Dock Corp., installing guns and gun foundations on merchant vessels, and repairing torpedo boats and transports.
- HAZELTINE, J. E. (VI) Chairman, Township Unit, Warren, Pa., Liberty Loan and Red Cross Drives; Mgr., The Bashlin Co., mfg. equipment for army camps.
- HEWINS, L. F. (XIII) Chief Draftsman, U. S. Experimental Station, Dept. Cons. and Repair, Navy Dept., Washington, D. C., working on design of ships forms and testing models for resistance and propulsion of ships, flying boat hulls, submarine chasers, towing depth bombs, paravanes, torpedo defense nets and mine anchorage.
- HILLER, G. F. (II) Expert on Fire Prevention in Factories, Fire Prevention Sect., War Industries Bd., Washington, New York and Boston; special work on the protection of water fronts of the Atlantic, Pacific, Gulf and Great Lakes Cities.
- HOLMES, G. E. (II) Chief Engr., Kidder Press Co., Dover, N. H., mfg. special machinery, gas-mask-wire looms, presses for printing and handling tin foil, cutting and creasing presses for making cartridge boxes and cartons.
- HUGHES, R. M. (V) Educational Director, Dist. No. 6, S. A. T. C.; Pres., Miami University, Oxford, Ohio.
- HUSE, A. W. (I) Chief Draftsman, Maintenance of Ways Dept., West of Buffalo, New York Central R.R., U. S. Railroad Adm.
- JACOBY, A. H. (V) Mgr., Intermediate Dept., National Aniline & Chemical Co., Inc., N. Y., mfg. various chemicals for explosives and gas offensive purposes.
- JOHNSON, B. H. (IV) General Supt., Cresson, Morris Co., Philadelphia, Pa., built ship auxiliaries such as steering engines, towing engines and propellers.
- JOHNSON, P. F. (II) Aeronautical Mech. Engr., Naval Aircraft Factory, Navy Yard, Philadelphia. Served with the Red Cross in Calif. (Referred to through error as Paul T. Thompson on page 251.)
- JONES, F. A. (I) Asst. Engr., Engr. Dept., Boston & Albany R.R., U. S. Railroad Adm.
- KAUFMAN, I. H. (II) Production Engr. on artillery ammunition, N. Y. Dist. Office, Ord. Dept.
- KEENE, A. S. (IV) Member of Firm of Keene & Simpson, Kansas City, Mo., architects for buildings for war purposes.
- KEEP, HELEN E., State Chairman, Mich., National League for Women's Service; Member, National Bd., National League for Women's Service; Member, War Camp Community Service.
- KENDALL, F. M. (IV) Architect, with Kilham & Hopkins, war housing project.
- KENDALL, R. E. (V) Guncotton Supt., E. I. du Pont de Nemours & Co., Hopewell Works, Hopewell, Va.

REGISTER OF CIVILIAN RECORDS

- KOCH, C. S. (V) Expert on Steel Castings, Production Div., Army Ord.; Pres. and General Mgr., Ft. Pitt Steel Casting Co., McKeesport, Pa., producing war materials.
- KUSE, A. W. (I) Chief Draftsman, Maintenance of Ways Dept., New York Central R. R., West of Buffalo, U. S. R.R. Adm.
- LACY, ROBERT (I) Chief Engr., D. L. Taylor & Co., Inc., General Contractors, cons. of dry dock and other work in Philadelphia Navy Yard, for Bu. of Yards and Docks, Navy Dept. See Military Record.
- LAMBERT, MABEL FORREST (Mrs. J. H.) (VII) Dist. Mgr., Food Conservation Comm., Lowell, Mass.; Sec., Lowell Child Welfare Comm.
- LANSINGH, VAN RENSSLAER (VI) Asst. to Dr. Hollis Godfrey, Advisory Comm., Council of National Defense, Washington, D. C.; engaged in engineering investigations in U. S. and in French and British Armies in France, reporting to Council of National Defense and to General Staff of A. E. F., France, with reference to oxy-acetylene welding; as Director, opened Technology Club of Paris; Business Mgr., American University Union in Europe, July '17; returned to U. S. A., July '18; Works Mgr., Metz Co., Waltham, Mass., making airplanes for U. S. Govt., Oct. '18. (Pages 61, 75 and 308.)
- LARRABEE, J. H. (I) Draftsman, U. S. N., Washington, D. C.
- LEE, W. H. (IV) Architect, mill extension, Newport Rolling Mill Co.; two dye plants for The Ault & Wiborg Co. at St. Bernard, Ohio, and Norwood, Ohio; factory extension, The McGowan Pump Co.
- LORD, H. I. (V) Vice-Pres., Detroit Lubricator Co., mfg. engineering specialties; fuses and carburetors for Liberty Motors and oil pumps for LeRhone aero motors.
- MILLIKEN, E. N. (VIII) Chemist, New Bedford Gas & Edison Light Co., New Bedford, Mass.
- MUHLIG, J. F. (II) Maintenance Engineer, Carney's Point Works, Smokeless Div., E. I. du Pont de Nemours & Co. (Page 358.)
- NELSON, W. B. (VI) Teacher, Physical Science, Manual Training High School, Brooklyn; Member, War Service Comm. organized by Supt. of Schools; Organizer, Comm. of Teachers to assist Local Draft Bd.; Asst. to Principal, Brooklyn Evening Technical and Trade School, war service classes in radio buzzers, ship drafting, ship fitting and auto repairs, from which men were inducted directly into service.
- NOLTE, J. E. (II) Arbitrator between U. S. Govt. and the Standard Aircraft Corp., 28 Feb.—15 July '19.
- PACKARD, A. A. (XIII) Works Mgr., Taylor Instrument Co., Rochester, N. Y., mfg. "altimeters" (barometers), used in every airplane made by U. S., compasses for soldiers and marines, industrial thermometers, pyrometers, automatic temperature regulators and recorders, barometers for both weather and engr.; as experts in temperature engr., were called upon in many fields of war work for consultation and service. (Page 410.)
- PAGE, WALTER (XIII) Chief Engr., Head of Engr. Dept., Canadian Explosives, Ltd., Montreal, Canada, designing and building cordite T. N. T., and shell loading factories for Canadian Explosives, Ltd., and for Canadian Govt.; made trip to England in '16 for consultation on explosive mfg. with British War Office; transferred to E. I. du Pont de Nemours & Co. as Personal Asst. to Chief Engr., Wilmington, Del., '18.
- PARKHURST, EDITH A. (VII) Worker, Red Cross and Service Club at St. Paul's Cathedral, Boston, Mass.
- PEASE, C. H. (II) Treas., Monadnock Blanket Mills, Marlboro, N. H., mfg. blankets and cloth for Govt.; Assoc. Member, Advisory Bd. (Draft).
- PHILBRICK, S. S. (II) Mgr., Research Sect., Supply Div., U. S. Shipping Bd., Emergency Fleet Corp.
- PORTER, A. F. (V) Mgr., Carney's Point Smokeless Powder Plant, E. I. du Pont de Nemours & Co., mfg. military smokeless powder. (Page 358.)
- *PRATT, R. W. (I) Supervising Engr., cons. of Camp Sherman, Chillicothe, Ohio; June '17; Supervising Engr., extensions of Camp Sherman, also Local Project Engr., two housing developments for U. S. Shipping Bd. and one for the U. S. Housing Corp., '18. Died, 2 Feb. '20.
- PRIEST, B. B. (I) Asst. Engr., American Bridge Co., mfg. structural steel for war work.
- ROBERTS, T. M. (VI) Electrical Engr., Bu. Yards and Docks, Navy Dept., Washington, D. C., 10 Apr. '17—1 Aug. '18; Electrical Engr., Cons. Dept., War Dept., working on equipment and cons. of electrical service in several National Army camps and cantonments.
- ROBINSON, J. T. (II) Pres., J. T. Robinson Co., Hyde Park, Mass., mfg. machinery for packing shells, food products, clothing, etc., on govt. order.
- ROBINSON, W. A., JR. (II) Chairman, Bristol Co. (Mass.) National War Savings Stamp Comm.
- SHEDD, A. R. (II) Bu. Steam Engr., Navy Dept., Washington, D. C.
- SMALL, J. S. (III) Chief Inspector, Inspector's Sect., Ord. Dept.
- SMITH, C. F. (XI) applied for Off. Tr. Camp '16—'17 but was not accepted; Pres., Redlands Rifle Club; helped form Local Guard.
- SMITH, C. H. (II) Assoc. Chief, Fire Prevention Sect., U. S. War Industries Bd., Washington, D. C.
- SMITH, G. L. (IV) Architect, Boston Office, Stone & Webster, Sept. '17—Mch. '18, plans for buildings at U. S. Arsenal, Watertown, Mass.; Fay, Spofford & Thorndike, in charge of architectural work, and exterior treatment of buildings at Boston Army Supply Base, Mch. '18.
- SMITH, H. T. (V) Steel Expert and Physicist, Union Metallic Cartridge Co., Bridgeport, Conn.; Chief Chemist, American Tube & Stamping Co., research work on steel, raw materials and steel products, hardening and metallography.

TECHNOLOGY'S WAR RECORD

- STEVENS, G. P. (IV) Director, American Academy in Rome; aided in founding American University at Rome.
- STEVENS, W. W. (IV) Resident Engr., Braden Copper Co., Chile; assisted in organizing Professional Sect., U. S. Employment Agency, New York City and State, Nov. '18. Offered services to U. S. Govt. but not accepted.
- STRENG, L. S. (VI) Supt., Louisville Gas & Electric Co.; designed and built electric transmission lines, substations and distributing systems for Camp Taylor and Camp Knox; Chairman, Comm. of Non-War Construction, Ky. Council of National Defense.
- STURTEVANT, EDWARD (IX) Teacher of Electricity, Naval Radio School.
- SULLIVAN, H. H. (II) Mech. Supt., Stickney & Poor Spice Co., Charlestown, Mass., mfg. spices and extracts.
- TALLMADGE, T. E. (IV) Adviser to Registrants, Evanston, Ill., Draft Bd.; Architect in Chief, Fifth Liberty Loan Decorations.
- TAYLOR, M. E. (II) Ordnance Draftsman, U. S. Navy Yard, Washington, D. C., made drawings for 3" gun mount for submarines, oiling arrangements and training circle covers for 3", 4" and 5" mounts on battleships; added a foolthing device to 4" twin mount.
- THOMPSON, M. DEK. (VIII) Consulting Chemist, General Electric Co., Schenectady, N. Y., in charge of research laboratory engaged in investigating fixation of nitrogen, problems in submarine detection and similar work.
- THOMPSON, P. T. referred to on page 251 by error. See P. F. Johnson.
- TIETIG, RUDOLPH (IV) Architect, Newport Rolling Mill Co., mill extension; The Ault & Wiborg Co., two dye plants, at St. Bernard, Ohio and Norwood, Ohio; The McGowan Pump Co., factory extension.
- TUCKER, A. H. (IV) Chairman, Publicity Comm., Ilion (N. Y.) Mohawk War Chest.
- TUCKER, A. W. (III) Consulting Mining Engr., Forest Service, U. S. Dept. of Agriculture, '17-'19, examination and appraisal of mineral properties in the Southern Appalachians; Mining Engr., War Minerals Relief, Bu. of Mines, Dept. of the Interior, '19.
- UNDERWOOD, W. L. (VII) Lecturer, Industrial Biology, M. I. T.; lectured at camps and cantonments.
- WATERSON, K. W. (VI) Engr. of Traffic, Engr. Dept., American Telephone & Telegraph Co., co-operating with govt. officials, particularly the Chief Signal Officer of the Army and the Director of Naval Communications of the Navy.
- WATKINS, NORMAN (V) Pres., Hawaiian Vigilance Corps of American Defense Society.
- WEIMER, E. A. (II) Consulting Engr., Weimer Machine Works Co., Lebanon, Pa.; repaired and kept in operation the manganese blast furnaces producing 60% of the ferro-manganese used in making steel ship plates and other steel products.
- WESSON, P. B. (II) Mechanical Supt., Wright Wire Co., Palmer, Mass., mfg. wire rope and other wire products, 80% for Govt.
- WILDER, W. A. (VI) Examiner in Charge, U. S. Employment Bu., Worcester, Mass., distribution of labor to the war industries of Worcester.
- WILLIS, R. S. (III) General Purchasing Agent, U. S. Rubber Co.
- WINSLOW, C.-E. A. (VII) Consultant in Industrial Hygiene, U. S. Public Health Service; Prof. of Public Health, Yale Medical School. See Military Record.
- WOOD, W. B. (I) Mech. Supt., Joseph Bancroft & Sons Co., Wilmington, Del., mfg. uniform cloths for Army and Navy, flag signal cloths for Navy, airplane and balloon cloths.

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- ADAMS, J. H. (IV) Architect, Brown & Sharpe Mfg. Co., Providence, R. I., in Sales Dept., and engaged in building foundry at Hills Grove.
- ADAMS, W. O. (X) Supt. and later Plant Mgr., Erie Specialty Co., Erie, Pa., organizing and managing factory making screw machine parts for airplanes for U. S. and British Govts.
- ADDICKS, LAWRENCE (II) (VI) Member, Naval Consulting Bd., New York City, throughout the war.
- ALBEE, E. E. (I) with Fay, Spofford & Thorndike on Boston Army Supply Base.
- ANDERSON, R. P. (I) (II) Asst. Mgr., Chain Block Dept., Yale & Towne Mfg. Co., New York City, furnishing hoisting and conveying equipment, cranes, trolleys, electric hoists for use of Army, Navy, and civilian corporations engaged in govt. work.
- ANDREWS, G. F. (V) made special reports for the State Dept. (Peace Comm.) and for War Dept., on questions concerning the French African possessions and protectorates.
- ARCHIBALD, W. M. (I) Supt. Track Construction, Camp Travis, San Antonio, Texas.
- ATKINS, G. F. (VI) testing armor plates for Govt., first the hardness of plates on Brinnell machine, then ballistically by ascertaining result of the impact of a bullet fired from a Springfield rifle at fifty yards range.
- BARRY, C. G. (I) Asst. Engr., Boston, Cape Cod & New York Canal Co., working on Canal maintenance, soundings and surveys of shoal areas, inspection of dredges and pile drivers; under U. S. Railroad Adm., 25 July '18.

REGISTER OF CIVILIAN RECORDS

- BENNETT, R. F. (I) Pres., Bennett Contracting Corp., Portland, Maine; firm drove piles for seven shipyard ways and did lightering of guns and gun carriages; lightering in connection with the building of the emergency ships; work for the installation of plants.
- BONNS, W. W. (IV) experiments on dehydration of garden products for Director of Missouri Botanical Gardens.
- BROWN, C. W. (I) Asst. to the Pres., The Brown Hoisting Machinery Co., mfg. hoisting machinery for govt. use. (Page 405.)
- BROWN, G. W. (V) Chemist, Assabet Mills, American Woolen Co., Maynard, Mass., coloring cloths for Army and Navy.
- BURGESS, PHILIP (XI) Project Engr., U. S. Housing Corp., Project No. 18, Charleston, W. Va.
- BURR, ALICE M. (VII) Member, Comm. Food Conservation, Melrose, Mass.; Red Cross Worker.
- BUTLER, W. H. (II) Director, Theodore Butler, Ltd., London, England, supplied British and Foreign Govts. with American tools, under contract with the Ministry of Munitions; volunteer worker in the American Eagle Hut, London.
- CALDWELL, F. W. (II) Engr., General Electric Co., Schenectady, N. Y., arranged for substitution of new materials for those not obtainable on account of the war; carried on experiments on arc welding for ships.
- CARRIGAN, ROSE A., Chairman and founder of Red Cross Auxiliary, 1682 Washington St., Boston, Mass.
- CASE, H. M. (VI) Managing Engr., E. L. Phillips & Co., New York City, in charge of engr. and cons. of the following: distribution system at Camp Upton, also sub-station and transmission to the camp; sub-station for Sayville Wireless Plant; sub-station and transmission line for Govt. Shell Plant, Baldwin, N. Y.; electrical line cons. to the Govt. Aerial Plant, Bayshore, N. Y., and plant at Conomack, N. Y.; Emergency Fleet Corp. Shipyard, Port Jefferson, N. Y.; extension of Long Island Lighting Co., Northport Plant, including new stack, 1,100 H. P. of boilers, coal and ash-handling equipment.
- CHURCHILL, D. C. (II) Consulting Engr., Garford Mfg. Co., Elyria, Ohio; designed and built automatic stabilizers on J. V. Martin 96 ft. bomber biplane; designed and built retracting chassis on J. V. Martin 16 ft. Single Seater Combat Biplane.
- CLUFF, C. B. (V) Supt. of Refining, American Cotton Oil Co.; supervision of production of essential food products and glycerine required by U. S. Govt.
- CONGDON, J. E. (II) Supervising Engr., Mechanical Goods Div., U. S. Rubber Co., Passaic, N. J., mfg. goods for carrying on the war.
- CORSE, W. M. (V) Adviser in Brass Foundry, Navy Yard, Portsmouth, N. H.; General Mgr., Titanium Bronze Co., Niagara Falls, N. Y., mfg. bronze castings for army trucks and submarine engines.
- DIKE, G. P. (II) Member, Special Comm. of Patent Lawyers appointed by Aircraft Bd. to report to Sec. of War and Sec. of Navy regarding patents on airplanes.
- DOZIER, HENRIETTA C. (IV) Red Cross Worker.
- DRYER, J. C. (VI) Vice-Pres., in charge of engineering, James Cunningham, Son & Co., Rochester, N. Y., designing the Caquot balloon windlasses for Army.
- DWYER, H. F. (X) Acting Chief Clerk of the U. S. Customs Intelligence Bu., Boston, Mass., enforcing the Espionage Act and the Trading with the Enemy Act in so far as they related to shipping. Duties: searching vessels, mustering crews, vising passports, issuing seamen's identification cards, conducting investigations with the Army and Navy Intelligence Bureaus, Immigration Service and Dept. of Justice.
- EATON, H. C. (II) Plant Engr., Waltham Watch Co., mfg. munitions, chronometers, and airplane clocks.
- ELLERY, J. B. (V) Chemical and miscellaneous work for Erie Forge Co., Erie, Pa.
- FARNHAM, H. P., Appeal Agent, Selective Service, Local Bd. No. 26, Peabody, Mass.
- FERGUSON, J. B. (I) Supervising Engr., Cons. Div., U. S. A., Balloon Observers' School, Camp Eustis, Va.; Concrete Roads Project from Morristown Naval Base 2, on Virginia Peninsula.
- FIELD, L. H., JR. (IV) Christian Science Camp Welfare Worker at S. A. T. C., University of Michigan, Ann Arbor, Mich.
- FLYNN, W. B. (VI) Electrical Engr., Westinghouse, Church, Kerr & Co., working on distribution of power and lighting of all buildings, Air Nitrates Corp., Nitrate Plant No. 2, Muscle Shoals, Ala.
- FOOTE, A. B. (I) General Mgr., North Star Mines Co., Grass Valley, Calif., gold mining.
- FRASER, MATILDA A. (IV) Director, War Garden Army Work, Girls' Latin School, Boston, Mass.; Teacher, Mathematics for Yeomen (F), Naval Radio School, Cambridge, Mass., under the auspices of the War Y. M. C. A.
- GLOVER, G. C. (IV) Designer, U. S. Housing Corp., housing for munition workers at Lowell, Mass.
- GRAVES, HENRIETTA L. (XII) Land Army Work, Bryn Mawr and Berwyn Units, Pa.; Red Cross Worker.
- GRAY, D. E. (VI) Development Engr., Corning Glass Works, Corning, N. Y., mfrs. of technical glass of all descriptions for govt. depts., railroads and mfrs. of explosives.
- GROVER, F. W. (VIII) Radio Expert, Bu. of Standards, Washington, D. C., 6 July—28 Sept. '17; and 1 July—29 Sept. '18; Prof. of Physics, S. A. T. C., Colby College, Waterville, Maine, 6 Oct.—12 Dec. '18.
- GURNEY, E. R. (VI) Chief Engr., Knox Motors Co., Springfield Co., Springfield, Mass.; designed a road tractor of which 500 were used by the French; built heavy tank transmission parts of the Liberty Motors and 9.5" gun carriages.

TECHNOLOGY'S WAR RECORD

- HAMBURGER, C. M. (X) Supervisor, Liberty Loan Work, State of Conn., '17-'18.
- HANCOCK, BERTHA BALLANTYNE (Mrs. J. H.) (VII) Vice-Chairman, Hudson Branch, Red Cross, May '17-Aug. '18; Treas., 1st Red Cross Drive, Hudson, Mass.; Canvasser, Red Cross Membership Drives; Chairman, Woman's Liberty Loan Comm., Third and Fourth Liberty Loan Drives; Member, General Hudson Comm., Victory Loan Drive.
- HANNA, B. S. (I) Member, Medical Advisory Bd., Baltimore, Md., from formation of Bd. to 18 Oct. '18. See Military Record.
- HAWKINS, L. A. (VI) Engr., Research Laboratory, General Electric Co., Schenectady, N. Y., assisted in work on submarine detectors, radio apparatus, X-ray tubes, nitrogen fixation, arc welding, electrodes for searchlights, submarine mines, spark plugs, armor plate, and bullets.
- HAZARD, W. A. (I) Mgr. of Sales, Lackawanna Bridge Co., Buffalo, N. Y., mfg. fabricated steel for cargo ships, Govt. Arsenal, Edgewood, Md., and for numerous shops and plants directly under govt. contracts.
- HERMAN, BERNARD (I) Chief Engr., M. W. & S., Southern R.R. Lines, U. S. Railroad Adm.; built railroad connections to Camp Greene, Charlotte, N. C., Camp Wadsworth, Spartanburg, S. C., Camp Sevier, Greenville, S. C. and Camp Gordon, Atlanta, Ga.
- HEWITT, E. H. (IV) Architect in charge of construction, Foyers du Soldat, France, 16 Sept. '17-May '18; erected 500 to 600 huts along the entire front from the Somme to Switzerland.
- HEWITT, H. H. (IV) applied for commission in heavy artillery, but was not accepted.
- HINKLEY, B. S. (II) in charge of distribution of coal for New England, Fuel Adm., Washington, D. C. (Page 312.)
- HINCKLEY, E. H. (X) Special Agent, Dept. of Agriculture, Dorchester, Mass.; development of airplane fabric; Maker of Color Vision Test for Army and Navy.
- HOLLIDAY, A. R. (I) Asst. Federal Fuel Adm. for Ind., Oct. '17-Mch. '19.
- HYDE, W. F. (IV) Traffic Mgr., West Virginia Aircraft Co., Wheeling, W. Va., under general inspection of the Aircraft Production Bd.
- JACKSON, G. O. (III) Inspector, Bu. Yards and Docks, Navy Dept., Washington, D. C., and Cleveland, Ohio.
- JAMES, H. P. (II) (VI) applied for commission; refused as over age for Officers' Reserve Corps.
- KIMBALL, W. H., Asst. Engr., Housing for War Needs, U. S. Housing Corp.
- KINSMAN, W. A. (II) Chairman, Newburyport Branch, Red Cross; Chairman, Red Cross Drives for Funds and Membership.
- LACAFF, F. L. (IV) Supt. of Cons. in Supervising Architect's Office, Treas. Dept., Washington, D. C., for Federal Buildings in Denver, Colo., and Newport, R. I.
- LEWIS, C. M. (III) Mgr. for King County, Wash., U. S. Public Service Reserve, Dept. of Labor; Mgr. for five counties, excluding cities of Seattle and Tacoma, for first Red Cross Drive; Capt., Victory Loan Drive; Mgr., activities of the organized mfrs. of Washington in co-operation with the govt. depts.; Consultant, Region 20, War Industries Bd.
- LOOMIS, ALLEN (XIII) Consulting Engr., Airplane Engr. Dept., Bu of Aircraft Production, McCook Field, Dayton, Ohio; invented the valve gear known as the Liberty Valve Gear; originated a geometrical method for enlarging drawings; invented a cooling system adopted in the U. S. D-9 fighting plane. (Pages 328 and 372.)
- MacBRIDE, J. D. (IV) (XIII) Supt., Hull Cons., Maryland Shipbuilding Corp., Emergency Fleet Corp., Apr. '17; Supt., 1st Div. of ten ways, American International Shipbuilding Corp., Hog Island Shipyard, Dec. '17; in charge of building the first ship "Quistconck"; Asst. Supt. of Training Dept., Hog Island. (Pages 388 and 394.)
- MATHESON, W. S. (II) Vice-Pres. and Mgr., Bacon & Matheson Forge Co., Seattle, Wash., mfg. wood and steel rigging blocks for Emergency Fleet Corp.
- MOORE, C. A. (X) Asst. Engr., Metropolitan Sewerage Works, Boston, Mass., in charge of maintenance studies, records and cons. on the North Metropolitan System.
- MORK, H. S. (V) Unofficial Consultant, Bu. Aircraft Production; Vice-Pres., Arthur D. Little, Inc., consulted on airplane dopes and solvent mfg.; assisted research on production of acetone by the fermentation process developed at the Rockefeller Institute; research work on gas mask eyepieces made from cellulose acetate; directed mfr. of cellulose acetate for airplane dope at the Chemical Products Co. Plant; research on substitutes for cellulose acetate in dopes. (Page 396.)
- MORSE, B. E. (II) Member, Bd. of Instruction of the Draft Bd., Div. 35, State of Mass.
- NEWELL, W. S. (XIII) Engr. Works Mgr., Bath Iron Works, Ltd., Contractors, in connection with building torpedo boat destroyers for Navy Dept.; Member, Fuel Adm. for Bath, Maine.
- O'HEARN, T. C. (X) Member, Cambridge, Mass., Fuel Comm.
- PAGE, C. B. (XIII) Vice-Pres. and General Mgr., Van Blerck Motor Co., Monroe, Mich.; supplied motors for Admiral's barges and other motor boats for U. S. N.; high speed engines for submarines for Russian Imperial Navy; Works Mgr., Duesenberg Motors Corp., perfected and produced Duesenberg 400 H. P., 8-cylinder, high speed, submarine chaser engines for U. S., Italian and Russian Navies.
- PHALEN, W. C. (V) War Minerals Investigator, U. S. Bu. of Mines, Dept. of the Interior, work on manganese and its alloys.

REGISTER OF CIVILIAN RECORDS

- PHELPS, E. B. (V) Senior Sanitary Engr., U. S. Public Health Service, New York City, working on problems of water supply, sewerage, and industrial waste disposal; Investigator for War Dept., Navy Dept. and Capital Issues Comm. (War Finance); Prof. of Chemistry, Hygienic Laboratory, research work on industrial poisoning by T. N. T.; disposal of wastes from chemical factory working for Navy Dept.; abatement of nuisance from wastes from bean cannery working for War Dept.; designed and constructed sewerage disposal plant for Hampton, Va., in Newport News area; Member, Medical Sect., Advisory Comm., Council of National Defense; Member, Comm. on Public Health; Member, Local Comm., Council of National Defense for District of Columbia. (Page 59.)
- PIERCE, E. E. (XIII) Chief Draftsman, in charge Industrial Training Dept., Shipyard, William Cramp & Sons, Ship and Engine Building Co., Philadelphia, Pa.
- PIERCE, R. K., Sec., Semet-Solvay Co., Syracuse, N. Y., mfg. high explosives, picric acid, T. N. T., ammonium picrate, and nitrate. (Page 363.)
- PINKHAM, R. H. (I) Engr., Pennsylvania R. R., U. S. Railroad Adm.; Div. Engr., Erie, Pa., '16; Div. Engr., Pittsburgh, Pa., Oct. '17; Asst. Supt., Pittsburgh, Feb. '18; Supt., Cape Charles, Va., Sept. '18.
- PRIEST, G. H. (X) General Mgr., Brockton Gas Light Co., supplying fuel to war plants, and light oils for explosives.
- RENSHAW, CLARENCE (VI) Asst., Conservation Dept., Fuel Adm., 1 Mch.—15 July '18, introduced "Skip Stop" system on electric railways in most of the cities in U. S., to save electricity; General Engr., Transportation Div., U. S. Housing Corp., 1 Oct.—1 Dec. '18, securing proper transportation to war plants.
- RICHMOND, M. S. (IV) Investigator for the employers, War Labor Bd.; Field Auditor, Red Cross, New England Div.
- RICKARDS, B. R. (V) Asst. to Deputy Comm., N. Y. State Dept. of Health (Education), Oct. '17; prior to '17, in charge Development Dept., Randall Faichney Co., developing parts of surgical instruments for war contracts.
- ROBERTSON, S. B. (I) General Supt., Central System, Pennsylvania R. R., U. S. Railroad Adm.
- ROOD, N. P. (IV) Vice-Pres., Hercules Powder Co., Wilmington, Del., in charge of the Industrial Research Dept. (Page 363.)
- ROYCE, F. P. (VI) Member of firm, Stone & Webster, constructors of arsenals, munition plants and cantonments. (Page 377.)
- SAMUELS, E. F. (II) Legal Asst., Draft. Bd., Baltimore, Md.
- SEAVEY, N. E. (VI) Member, Ex. Comm., Liberty Loan Campaign; furnished hardware to plants of the Emergency Fleet Corp.
- SHERRILL, M. S. (V) Chemical Investigator, Explosives Branch, Engr. Div., Ord. Dept., supervising investigations on mfr. and production of high explosives and investigation of a catalytic process for producing picric acid directly from benzene.
- SITES, F. R. (I) Treas., Federal Shipbuilding Co., Kearny, N. J.; built thirty ships for Emergency Fleet Corp.
- SKINNER, H. J. (V) Vice-Pres., Arthur D. Little, Inc., Cambridge, Mass., doing research work for gas mask smoke filters. (Page 396.)
- SMITH, H. L., Electrician Machinist, production of jigs and fixtures for production of gun parts and airplane motors.
- SOULE, H. W. (II) Mgr., Sales Order Dept., B. F. Sturtevant Co., mfg. blowers, etc., for battleships and for munition plants.
- STARR, H. H. (I) Asst. Engr., American Bridge Co., Erecting Dept., Philadelphia, Pa., assisted in preparation of erection plans, equipment and general superintendence of erection of bridges and buildings for U. S. Govt.
- STEWART, E. T. (IV) Ship Draftsman, Atlantic Corp., Portsmouth, N. H.; Draftsman, Monks & Johnson, Philadelphia, Pa.; Draftsman, Fay, Spofford & Thorndike, Boston, South Boston Army Supply Base. Q. M., Merchant Marine, Nov. '18.
- STREET, G. B. (II) Engr., E. I. du Pont de Nemours & Co., Wilmington, Del., assisting in supply of raw materials, especially potash and nitrate of soda.
- STUART, H. R. (IV) (VI) Chief, Electrical Sect., Production Engr. Dept., Bu. of Aircraft Production, Dayton, Ohio, and Washington, D. C., supervising the design and installation of the electrical equipment on all army airplanes.
- SWAN, C. M. (V) Member, War Camp Community Service, Unit No. 1 (Harvard Unit), New York City, Jan. '18—Mch. '19.
- TANDY, W. C. (XII) Asst. Foreman, L. S. Starrett Co., Athol, Mass., mfg. fine mechanical tools for Govt.
- THOMPSON, ABBY M. (VII) Worker for Red Cross.
- TOWNSEND, G. R. (XIII) Vice-Pres., T. A. Gillespie Co., N. Y., and Vice-Pres. and General Mgr., International Steel & Ordnance Co., Lowell, Mass., mfg. ammunition for Russian and U. S. Govts.
- TRASK, E. P. (XIII) Asst. Naval Architect, William Cramp & Sons Ship and Engine Building Co., Philadelphia, Pa., expediting material for the cons. of torpedo boat destroyers.
- VOGT, O. G. (IV) Asst. Chief, Design Information Dept., U. S. Industrial Housing, Washington, D. C.

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- WHITING, C. F. (VII) General Mgr., D. Whiting & Sons, Milk Dealers, Boston, Mass., supplying Army and Navy and general public.
- WHITNEY, W. C. (I) Senior Architect, Interstate Commerce Comm., Div. of Valuation, Washington, D. C., engaged in making physical valuation of railroads.
- WIGHTMAN, FRED (II) Draftsman, Ord. Dept., Washington, D. C., designing gun mounts.
- WINSLOW, G. C. (III) Consulting Engr., principally in coal mine work.

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- ABEEL, D. G. (I) Chief Engr., Roberts Filter Co., Darby, Pa., in eastern part U. S. and in San Juan, Porto Rico; connected in an official capacity with the design, installation and operation of water supply and purification plants for cantonments, ammunition plants, shipyards, and for A. E. F., in France.
- ALLEN, E. G. (II) Engr., with Stone & Webster, Boston, Mass., consulting with the American International Shipbuilding Corp., Hog Island, Pa., Oct. '17—Apr. '18; Asst. Mgr for Stone & Webster on govt. work at the Rock Island and Watertown Arsenals and elsewhere, Apr.—Nov. '18. (Page 391.)
- ANGUS, W. J. (I) General Contractor on contracts for Ord. Dept., Chicago Dist. 2d Lt., American Protective League.
- BABCOCK, P. A. (I) Estimator on Cons. of Extension for Watertown Arsenal, for Stone & Webster, Boston, Mass., Nov. '17—Apr. '18; with Fay, Spofford & Thorndike on the cons. of Boston Army Supply Base, Apr. '18—June '19; Inspector in charge of cons. of the Storehouse, Apr.—Oct. '18; Chief Inspector, Oct.
- BACON, C. J. (II) Experimental Engr., E. I. du Pont de Nemours & Co., Wilmington, Del., increasing output of explosives.
- BAKER, W. C. (VI) Asst. Foreman, Signal Dept., Maine Central R.R., U. S. Railroad Adm.
- BALCOM, R. W. (V) Food Investigation Chemist, in charge Food Investigation Laboratory, Bu. of Chemistry, Dept. of Agriculture, Washington, D. C.
- BARKER, J. E. (VI) Consulting Engr., Construction of Camp Kearney, San Diego, Calif.
- BARNEY, MORGAN (XIII) Asst. to Mr. Maxim on designs of Maxim's Torpedo-Proof Ship, U. S. Shipping Bd.
- BATCHELLER, J. H. (III) Mgr., Virginia Lead & Zinc Corp., Mineral, Va., mining lead ore for govt. use.
- BIGELOW, H. B. (VII) Special Expert, U. S. Shipping Bd.; Inst. in Navigation and in charge of Training Schools for Deck Officers at Cambridge, Mass., and at Norfolk, Va., 18 July '17—15 June '18, and 25 Oct.—1 Jan. '19; at Sea, 14 Aug.—20 Oct. '18; Reserve Officer, U. S. Army Transport Amphion. Gun fire duel with submarine, 12 Oct. '18, in which ship suffered much damage and ten casualties.
- BRIGHT, Z. M. (I) Asst. Engr., Maintenance Dept., Pennsylvania Lines, U. S. Railroad Adm.; applied for appointment in Engr., O. R. C.
- BRIGHAM, T. W. (XIII) Pres., Greenport Basin & Construction Co., Greenport, N. Y.; carried out orders and contracts for Navy and War Depts. See Military Record.
- BROCK, H. M. (VIII) volunteered as Chaplain but not accepted.
- BROOKS, ETHEL FIFIELD (Mrs. L. R.) (IV) Inst. in Home Dietetics, Westchester Chapter (N. Y.) Red Cross; Worker for Food Conservation, War Savings Stamps and Red Cross Campaigns.
- BROOKS, M. E. (I) Engr., with Central Cons. Corp. on cons. of Gas Shell Filling Plant, Edgewood, Md., Dec. '17—Aug. '18; with Day & Zimmerman, Engrs. on cons. of Q. M. Terminal, Philadelphia, Pa.; in charge of Railroad Work; also laid out work on Pier B, Aug. '18—June '19.
- BROWN, J. W. (V) Pres. and Mgr., The Cleveland Electro Metals Co., mfg. aluminum for war purposes.
- *BROWN, S. P. (II) Vice-Pres. and General Mgr., Ford, Bacon & Davis Corp.; Chief Engr., Cons. Dept., International Coal Products Corp., constructing carbocool and by-products plant, for the manufacture of a smokeless fuel (Carbocool) and of toluol, the first of its kind ever built. Died, 6 Dec. '19. (Page 394.)
- BUFFUM, F. D. (II) aided in development of coal production.
- BUGBEE, E. E. (III) Asst. Dist. Educational Director, Comm. on Education and Special Training, War Dept.; in charge administration of S. A. T. C. in Southeastern States.
- BUYS, A. F. (IV) Member, New York City Publicity Dept., 4th Liberty Loan Campaign.
- CAMPBELL, JOHN (III) Sec., Treas., and Purchasing Agent, Harrisburg Mfg. & Boiler Co., Harrisburg, Pa., mfg. gun mounts (ry.), Schneider French railway mounts, gun firing platforms, wheel mounts, howitzer caterpillar tractors; with Enz. Div. Ord. Dept., as civilian.
- CHALMERS, H. B. (X) Statistician, California Loading Co., Perth Amboy, N. J., engaged in efficiency and fatigue studies toward improvement of loading operations.
- CHASE, F. D. (I) Pres., Frank D. Chase, Inc., Chicago, Ill.; designing, cons. and equipping industrial plants, including a shell plant, shell assembling plant, shipyards and foundries; offered services to Govt. but not accepted.
- CHRISTENSEN, WILLIAM (II) Engr., General Engr. Dept., American Telephone & Telegraph Co., New York City, giving Govt. telephone service, particularly in Washington; assisted in the enlistment and training of Telephone Operators' Unit for A. E. F.
- CLARKE, W. C. (IX) Engr., Narragansett Electric Lighting Co., Providence, R. I.

REGISTER OF CIVILIAN RECORDS

- CLOW, PERCIVAL (IV) Structural Engr., in charge Building Designing Dept., Westinghouse, Church, Kerr & Co., Inc., New York City, inspecting designs and purchasing structural steel for war works including Air Nitrates Plant No. 2, Sheffield, Ala., and Rock Island Arsenal, Ill. (Page 375.)
- COLLIER, W. R. (VI) Representative of Priorities Comm., War Industries Bd., in north Georgia, 1 Aug.—1 Nov. '18, in regard to allotment of power to all industries on the lines of the Georgia Ry. & Power Co.; Operating and Sales Mgr., Georgia Power Co.; Sales Mgr., Atlanta Gas Light Co.
- CONANT, H. S. (VI) inducted into service for Off. Tr. Camp., Camp Lee, Va., 10 Nov. '18, but signing of armistice prevented active service.
- CONANT, J. B. (VI) Asst. Treas., Conant Bros. Co., Somerville, Mass., mfg. mirrors and furniture for battle-ships and destroyers.
- CUTTING, G. W., JR. (I) Asst. Project Engr., with Atlantic Corp.; Engr. for U. S. Shipping Bd., at Atlantic Heights Housing Project, Portsmouth, N. H., 1 May—Oct. '18; Material Engr. and Asst. Production Engr., Atlantic Corp., Engr. Div., Oct. '18—to date (15 Dec. '19). See Military Record.
- DEAN, W. C. (VI) Ex., in charge of all electrical work, Bu. of Cons. and Repair, Navy Dept., Washington, D. C.; Member, Washington Comm. of Mobilization of Tech Resources; assisted the local office established by Tech Clubs Associated.
- DEWOLF, R. C. (V) (IX) Librarian for Amer. Library Assn., Library of Congress, Washington, D. C., visiting camp libraries, arranging distribution of books from Library of Congress, and assisting in drives to obtain books by gift from local high schools.
- DOREY, W. A. (III) Designing Engr., Holophane Glass Co., Inc., Newark, Ohio, mfg. glass for Govt.
- DRAPER, J. P. (IX) Chairman, Legal Advisory Bd., Mass., Div. 35. (Page 4.)
- ELLIS, CARLETON (V) Research Chemist on govt. work.
- EMERY, G. W. (III) Leading Draftsman, in charge of Centrifugal Compressor Design, General Electric Co., Lynn, Mass., designing compressors for blast furnaces; designed and supervised drafting of the Moss Super-charger for use with the Liberty Motor.
- FITCH, S. G. H. (X) Accountant: examined accounts of cotton mills, tabulating costs which were used in price fixing, Federal Trade Comm.; New England Fuel Adm.; revised the accounting system of the Wool Purchasing Q. M., U. S. Wool Adm.
- FORD, G. B. (IV) Member, Organizing Comm., American Institute of Architects, to help on plans for Mobilization Cantonnments in U. S., Q. M. C., Apr.—May '17. See Military Record.
- FRENCH, P. R. (V) Mfr. of Coal Tar Dyes since '16.
- FRINK, GERALD (II) Pres. and Mgr., Washington Iron Works, Seattle, Wash., mfg. logging and hoisting machinery, cargo winches and steel castings for the Navy and Merchant Marine; also logging engines and logging equipment for Spruce Production Div.
- GIBBS, G. C. (I) Director, Technology Bu., American University Union, Paris, France, 6 Mch. '18—13 Sept. '19. (Page 80.)
- GODFREY, L. W., in charge, Ordnance Instrument Dept., Young & Sons, Inc., Philadelphia, Pa., mfg. gun testing levels and longitudinal levels.
- GOODRIDGE, F. S. (VI) with Wharton Green & Co., New York City, Building Contractors for factory for firm doing ship and marine repairing during the War.
- HARTT, W. S. (I) Treas. and Director, The Shawining Water & Power Co., Montreal, Canada, which perfected a process for mfr. of acetone and acetic acid synthetically from acetylene gas produced from calcium carbide, for British War Office; produced large quantities calcium carbide and metallic magnesium.
- HASELTON, BARTON (II) Member, Brass Comm., War Industries Bd.
- HEGHNIAN, G. G. (I) (XI) Asst. Engr., Conveying Div., Air Nitrates Corp., Feb. '18. Agent, Ord. Dept., for mfr. of ammonium nitrate; in charge of road work around plants, No. 2, Muscle Shoals, Ala., No. 3, Toledo, Ohio and No. 4, Cincinnati, Ohio, July '18; designing crushing machinery for Plant No. 2, Oct. '18.
- HINMAN, DEAN (I) Asst. Engr., Chicago, Great Western R.R., keeping railroad in shape to move freight and troops.
- HOLBROOK, G. M. (V) Travelling Supt., Refinery Dept., Armour & Co., supervising production of food stuffs for Army and Navy and Allied Purchasing Comms.
- HOPEMAN, B. C. (IV) Building Contractor and Mfr., outfitting merchant vessels.
- HUBBARD, H. V. (IV) Surveyor and later Asst. Engr., Cantonment Div., Q. M. Dept., at Camp Devens, Mass.; Designer, Cons. Div., Q. M. Dept., Washington, D. C.; Expert, Council of National Defense, Washington, D. C.; Asst. Mgr., Town Planning Div., U. S. Housing Corp., Washington, D. C.
- HUGHES, C. H. (II) Technical Aide, U. S. Shipping Bd., Emergency Fleet Corp., New York City; Author "Hughes' Handbook of Ship Calculations, Construction and Operation."
- HURD, W. R. (II) Asst. to Supt., United Shoe Machinery Corp., mfg. shoe machinery for U. S. Govt.
- HUSSEY, J. W. (XIII) Naval Architect, The Greenport Basin & Construction Co., Greenport, N. Y., working on design and construction of Russian Black Sea Submarine Defense Fleet (forty units); design and cons., nine submarine chasers incorporated in S. P. Fleet, U. S. N.; cons., five small mine tenders for Q. M.; rebuilding yacht U.S.S. Zoraya and general naval repair and emergency work. See Military Record.

TECHNOLOGY'S WAR RECORD

- JACKSON, W. F. (IV) Purchasing Agent, Fay, Spofford & Thorndike, Boston, Mass., Supervising Engrs., Boston Army Supply Base, South Boston, Mass.
- JONES, S. W. (IV) Bu. Yards and Docks, Navy Dept., Washington, D. C., July—Dec. '17. Supervising Engr., U. S. Naval Operating Base, Norfolk, Va., Dec. '17—Nov. '18; Washington Representative, National Assn. Electrical Contractors, handling matters of contract policy with all govt. departments and bureaus controlling cons. and matters relating to labor.
- JOUETT, H. D. (I) Terminal Engr., N. Y. Central R.R., U. S. Railroad Adm., in charge cons. and maintenance of Grand Central Terminal, New York City; prepared plans for freight terminals.
- KEAY, H. O. (II) Pvt., Canadian Off. Tr. Camp, Inf., McGill University Contingent, but not able to pass medical requirements for active service; Mgr., Research Dept., and Resident Consulting Engr., Laurentide Co., Ltd. Grande Mere, P. Q., engaged in research work in fuel saving; research work for Imperial Munitions Bd. for mfr. of ethyl alcohol from sulphite waste liquor in pulp mills, together with recovery of cymene for conversion to toluol for T. N. T.
- LEACH, G. H. (IV) Campaign Mgr., all Liberty Loans, War Chest and Y. M. C. A. Campaigns, Brockton, Mass.
- LEACH, R. H. (III) Asst. Mgr., Handy & Harman, Bridgeport, Conn., supplying pure silver for quenched spark gaps for radio apparatus, sutures, etc., sterling silver for electrical contracts for wireless apparatus, medals and insignia, coin silver for 75 mm. guns, electrical contacts, silver solders for turbine blades, ammunition cases, aeroplanes, etc.; karat gold for medals and insignia, brass, copper and nickel silver in sheets for U. S. Govt. exclusively.
- LINCOLN, F. C. (III) Director, Nevada State Mining Laboratory, Reno, Nevada; Director, Mackay School of Mines.
- MACINTIRE, B. G. (V) Asst. Supt., E. I. du Pont de Nemours & Co., Georgetown, S. C., mfg. grain alcohol from wood waste for the mfr. of smokeless powder.
- McMASTER, JENNIE K. (IV) Draftsman, taking place of man in service, The Marshall Elevator Co., Pittsburgh, Pa.; Worker, Red Cross.
- MAGUIRE, J. T., Chief Draftsman, later Project Mgr., Bu. of Yards and Docks, Navy Dept., in charge of design of fuel oil installations, marine barracks, and radio towers, radio buildings, and accessories, both here and abroad.
- MAXFIELD, D. E. (II) Shop Engr., American International Shipbuilding Corp., Hog Island, Pa. (Page 391.)
- MERRICK, C. V. (IV) Worker, Bu. of Investigation, Dept. of Justice, Glen Falls, N. Y., '17.
- MILLER, L. A. (I) Supervising Draftsman, office of Bridge Engr., Pennsylvania R.R., Philadelphia, Pa., designing round houses and bridges to increase facilities of Pennsylvania R.R. in the transportation of ammunition and supplies.
- MORRIS, H. C. (III) Volunteer Mining Engr., Production Div., Fuel Adm., 1 Dec. '17—2 May '18; Staff Member, War Minerals Investigation, Bu. of Mines; Member, Comm. on Capital Issues Applications, Bu. of Mines; Author of confidential bulletin on zirconium.
- OSGOOD, H. E. (II) Dist. Mgr., S. Riley Stoker Co., Boston, Mass., placing stokers in public service power plants, Winchester Arms, Remington Arms, Midvale Steel and Electric Light and Power Cos.
- OSGOOD, ISAAC (II) Member, Mass. Fuel Adm.; Chairman, Local Fuel Comm., North Andover, Mass.; Member, North Andover Public Safety Comm.; Member, Legal Advisory Bd., in charge of 1st and 2d registrations under Selective Service System.
- PERRY, T. D. (II) Vice-Pres. and Mgr., Grand Rapids Veneer Works, Grand Rapids, Mich., designing and constructing numerous batteries of lumber dry kilns, for exacting drying of airplane material, gunstocks, artillery and transport wagons; consulted by various depts. in Washington; prepared articles on "War Drying."
- PICKARD, G. W. (V) Consulting Engr., Wireless Specialty Apparatus Co., Boston, Mass., working on solution of vital problem of static interference with transatlantic radio communication; installed Static Eliminator at Company's Radio Station, Otter Cliffs, Maine, this station becoming chief receiving point for transatlantic messages; assisted in production of transmitters and receivers for Naval Radio Service.
- PLUMMER, H. C. (III) Supt. and Part Owner, Niles Sand, Gravel and Rock Co., Niles, Calif., supplying concrete materials for shipyards and powder works.
- PRICE, P. L. (IV) General Mgr., Irving Iron Works Co., Long Island City, N. Y., mfg. grating, flooring, walkways for ships and buildings for Army, Navy and Emergency Fleet Corp. and fabricated steel for ships.
- RAPP, W. L. (IV) Member of Firm, Zettell & Rapp, Architects, Cincinnati, Ohio, designed large machine tool shops and other industrial plants.
- REARDON, T. F. E. (VI) Inspector, Underwriters' Laboratories, Inc., Chicago, Ill.; co-operated with Govt. in inspection of outpost wire, fire extinguishers and other material designed for use in prosecuting the war.
- REIMER, A. A. (I) Community Director, Air Nitrates Corp., Muscle Shoals, Ala., May—Nov. '18; in full charge of all camp, town and municipal functions for cons. camp of 25,000 workers, and all business functions and operations for same. See Military Record.
- RICHARDSON, C. A. (I) Designer, with Monks & Johnson, Boston, Mass., designing buildings at Victory Plant, Squantum, Mass.; Designer, Fay, Spofford & Thorndike, working on designs of steel work and reinforced concrete for Army Supply Base, South Boston, Mass.
- RIPLEY, P. F. (V) Chemist, Wood Worsted Mills, Lawrence, Mass., producing cloth for Army and Navy.

REGISTER OF CIVILIAN RECORDS

- ROBERTS, R. P. (III) Chief Metallurgist, Mount Lyell Mining and Railway Co., Ltd., Queenstown, Tasmania.
- RUSSELL, G. E. (I) Commandant (with rank of Maj.), Technology Unit at East Machias Camp, Maine, June '17; Bu. of Cons. and Repair, U. S. Navy, serving in experimental and advisory capacity in design and cons. of a new type of submarine. (Page 45.)
- SILVERMAN, MORTIMER (VI) General Mgr., International Clay Machinery Co., Boston, Mass., mfg. 4-7'' H. E. shells, and auxiliary units for Emergency Fleet Corp.
- SMITH, L. S. (II) Asst. Prof. of Applied Mechanics, M. I.T., gave extra courses in applied mechanics and kinetics to help prepare men for Engr. C., and Ord. Dept.; gave three courses in applied mechanics at Camp Cunningham, East Machias, Maine.
- STANNARD, MRS. MARGARET J., Emergency Home Demonstration Agent, Extension Service in Home Economics, Dept. of Agriculture and Mass. Agricultural College, co-operating with City of Boston; Member, Council of National Defense, Boston, Mass.
- STONE, W. W. (I) Supt. of Cons. for Snow & Triest Co., Raritan Arsenal, Raritan River, N. J., Dec. '18—Nov. '19.
- STRATTON, C. H. (IV) Leading Architectural Draftsman, Bu. Yards and Docks, Navy Dept., Washington, D. C.
- SUHR, C. F. (II) Engr., in charge Power Div., American Brass Co., Waterbury, Conn., supervising the design and cons. of power plants.
- THAYER, H. M. (V) Supt., Port Ivory Factories, and in Purchasing Dept., Procter & Gamble Co. until June '18; Works Mgr., B. T. Babbitt, Babbitt, N. J., in charge of mfr. of soaps, edible oils, and glycerine, Oct. '18.
- THORPE, EDITH LILIENCANTZ (Mrs. L. S.), (IV) Worker, Covina (Calif.), Branch Red Cross.
- TRUE, P. E. (X) applied for service; refused on account of eyes; Dept. Mgr. and Chemist, Elgin National Watch Co., Elgin, Ill.
- TUDBURY, W. C. (I) Structural Steelworks Draftsman, Bu. Yards and Docks, Navy Dept., Washington, D. C., 15 Nov. '16, in charge of design; prepared specifications for aeroplane hangars, Pensacola, Fla.; wrote specifications for cons. and designed track layouts of U. S. Projectile and Armor Plants, Charleston, W. Va.; prepared standard railroad specifications for Navy Dept.; Expert Aide; Navy Yard, Mare Island, Calif., 1 June '18, in charge of wartime cons.
- TWEDDY, G. A. (III) engaged in production of wheat, hogs and cattle, Casa Grande, Arizona.
- VOGEL, E. F. (I) Asst. Supt., By-Product Coke Plant, The Youngstown Sheet & Tube Co., Youngstown, Ohio, producing coke used in mfr. of steel for U. S. and her allies; Mfr. gas, coal tar, ammonium sulphate, benzol, toluol, and xylol, last four products for mfr. of explosives.
- WALKER, F. R. (IV) Architect, U. S. Housing Corp., for industrial houses, Alliance, Ohio.
- WALKER, H. L. (IV) Business Mgr., Dist. No. 2, Comm. on Education and Special Training, War Plans Div., General Staff, War Dept., New York City, Oct. '18—15 June '19; handled all business between War Dept. and about forty colleges and universities in connection with vocational training and Army Training Corps, in New York and New Jersey.
- WARREN, F. D. (II) Supervising Engr., Bu. Yards and Docks, Navy Dept., supervising cons. at Naval Ord. Plant, Charleston, W. Va.
- WALWORTH, A. C., JR. (II) Pres. and Mgr., Walworth-English-Fleet Co., Boston, Mass., contractors for piping and special work for Navy Dept., Heating of Treasury Dept. Annex, Washington, D. C. and Commonwealth Pier No. 5, for Sailors' Barracks.
- WASTCOAT, RICHARD (I) Member of Public Safety Comm. and of Taunton Military Comm.; Pres., Treas., and General Mgr., Paragon Gear Works, equipping all gasoline motors built by Military Dept. with transmission or reverse gears, and many submarine chasers and patrol boats; designed and built the transmission in forty-five days for the Murray and Tregurtha Motors used in the sea sleds built by the Navy Dept. for transporting airplanes on deck.
- WEDLOCK, W. H. (I) Asst., later Chief Draftsman, Dept. of Public Works, U. S. Navy Yard, Charlestown, Mass.
- WEEDEN, W. L. (II) Acting Principal Clerk, Salvage Div., Q. M. C., General Supply Depot, Boston, Mass. in charge of work done by contractors in reclamation of govt. property; in this connection organized and established clothing repair shops for the Red Cross, Northeastern Dept.
- WHITE, A. B. (I) raising grain and hay, Riverside, Calif.
- WOODWARD, A. H. (III) Member, Sub-Comm., Pig Iron, Iron Ore and Lakes Transportation, American Iron and Steel Institute, Woodward, Ala.; Chairman, Bd. of Directors, Woodward Iron Co.

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- ARSEM, W. C. (V) Pres., Industrial Technics Corp.; Pres. and Treas., Organic Products Corp.; Consulting Engr., Staff of Research Laboratory, General Electric Co., Schenectady, N. Y., research work and supervision of mfr. of chemicals.
- BLANCHARD, H. T. (IV) Aeronautical Mech. Engr., Civilian Personnel, Sig. C., Washington, D. C.; Executive, Dope, Fabric and Enamel Inspection Sect., Bu. Aircraft Production, Washington, D. C.
- BLAUVELT, W. G. (VI) Engr., American Telephone & Telegraph Co., working on secret code for communication, and development of machine switching telephone systems.

TECHNOLOGY'S WAR RECORD

- BOLSTER, R. H. (VI) Hydraulic Engr., Mississippi River Power Co., regulation of flow of Mississippi River for proper maintenance of continuity of delivery of electrical energy to public utilities and war industries.
- BOYD, F. R. C. (VI) Engr. and Salesman, Power Equipment Co., experimental and developmental work on special apparatus for War Dept.
- BRIGHAM, E. F. (X) Pvt., 1st Motor Corps, Mass. State Guard, '18-'19. Strike duty in Boston, 10 Sept.—6 Dec. '19; Mech. Engr. with New England Confectionery Co.
- BRUCE, R. E. (IX) Prof., Mathematics and Surveying, S. A. T. C., Boston University, Boston, Mass.
- BRUSH, M. C. (II) Pres., American International Shipbuilding Corp., Hog Island, Pa. (Page 390.)
- BURDICK, E. P. (I) Engr., Forge and Punch Press Depts., Colt Patent Fire Arms Co., Hartford, Conn.
- BUTLER, L. S. (IV) Chairman, Selective Service Bd. No. 1, Suffolk Co., L. I., June '17.
- CADY, F. E. (VI) Asst. to Director, Nela Research Laboratory, National Lamp Works of General Electric Co., executive and experimental work for National Research Council.
- CAMPBELL, C. F. F. (IX) Asst. Director, Red Cross Institute for the Blind, Baltimore, Md., for re-education of blind soldiers, sailors and marines.
- CARPENTER, R. R. M. (IV) Vice-Pres., E. I. du Pont de Nemours & Co., (Pages 355 and 359.)
- CATLIN, J. P. (VI) Engr., Motor Dept., General Electric Co., Pittsfield, Mass., mfr. electric motors for electrically driven tanks and 9" Howitzers, and fan motors for U. S. N. and Emergency Fleet Corp.
- CHANDLER, H. T. (II) Supt., Walter Baker & Co., Ltd., Dorchester, Mass., mfg. chocolate and cocoa for Govt.; factory fuel comm. co-operated with Federal Fuel Adm.
- CHALMERS, H. B. (X) Efficiency man, California Loading Co., handling T. N. T., nitro-starch, etc.
- CHANDLER, L. D. (II) Steam Engr., and Piping Contractor; piping work for 3750 H. P. Turbine, Charlestown Navy Yard, and battle cruiser and submarine slips, Fore River Shipbuilding Corp.
- CHUBB, C. N. (I) furnished light, heat and power to war industries.
- CHURCH, E. F., JR. (XIII) organized and supervised instruction in Vocational Training Sect., West Virginia University, including shop work, drafting, automobile repairs; Inst. S. A. T. C., Brooklyn Polytechnic Institute.
- CLARK, R. B. (XIII) Asst. Inspector, Hull Construction (wood), Bu. Cons. and Repair, Navy Dept., Washington, D. C.; Resident Inspector, 110' submarine-chasers built by Mathe's Yacht Building Co., Camden, N. J. See Military Record.
- COBURN, F. W. (X) General Supt., Perry Iron Co., Erie, Pa., mfg. pig iron.
- COWELL, D. H. (VI) Engr., in charge of electrical equipment, Nantasket Beach Branch, N. Y., N. H. & H. R. R.
- CRITTENDEN, P. L. (VI) Inst., Carnegie Institute of Technology, Pittsburgh, Pa., Electricity and Magnetism in connection with Radio Mechanics' Course.
- CULP, C. M. (I) Certified Public Accountant, J. Bornstein & Sons, Inc., Auxiliary of U. S. Shipping Bd., furnished kitchen and dining-room equipment for boats built in Seattle, Wash.; Accountant, Merchandise, Seattle Chapter Red Cross.
- CUSHMAN, FRANK (II) Engr., Experimental Engr. Bu., Ord. Dept., Langley Field, Va., making airplane bombing experiments, 24 June—25 Aug. '18, and in charge of observation tower at bombing field. In charge of War Emergency Training, Kansas City Schools, 1 Jan. '18; Federal Agent for Industrial Education, West Central States, under Federal Bd. for Vocational Education, 1 Nov. '18.
- DANFORTH, N. L. (II) Pres., John W. Danforth Co., cons. contracts for Bu. of Yards and Docks, Navy Dept.; heating plant and distributing system, Naval Operating Base, Norfolk, Va.; fuel oil storage plants, Melville, R. I., and San Diego, Calif.
- DART, A. C. (III) Mgr., Columbia Leasing Co., Idaho Springs, Colo., supervising mining, concentrating, and marketing complex ore of gold, silver, lead, and copper.
- DART, H. E. (VI) Supt., Engr. Dept., The Hartford Steam Boiler Inspection & Insurance Co., working on installation, operation and maintenance of power and heating plants; Worker for Federal Fuel Adm. Bd.
- DAVIDSON, W. F. (II) Works Engr., American Steel Foundry, making high-explosive shells, '16-'17; Shops Engr. during cons., later, Supt. Plate and Angle Shop, American International Shipbuilding Corp., Hog Island; Appraiser with U. S. Shipping Bd., Emergency Fleet Corp., July '19. (Page 391.)
- DAVIS, E. H. (IX) Statistician, Scovill Mfg. Co., mfg. munitions for U. S. Govt.; Vice-Chairman and Director, Tippecanoe Co. Chapter, Red Cross.
- DAVIS, O. M. (XIII) Engr., in charge, Fabricated Ship Parts, Whitehead & Kales Iron Works, Detroit, Mich., mfg. ship parts for Submarine Boat Corp. and American Industrial Shipbuilding Corp.
- DAVIS, W. P. (III) Chemist, Towle Mfg. Co., mfr. 1500 life buoys and with others completed 250,000 gas masks for Govt.
- DENNISON, C. H. (X) Chemist, American Rubber Co., East Cambridge, Mass., developed methods for, and supervised the mfr. of, balloon fabric for U. S. Govt. balloons.
- DERBY, R. B. (IV) Project Supervisor, U. S. Shipping Bd., Emergency Fleet Corp., Housing Div., Production Branch, Philadelphia, Pa., Bath, Me., Portsmouth, N. H., and Groton, Conn.
- DERBY, R. M. (I) in charge of Foreign Dept., Niles-Bement-Pond Co., New York City, furnishing machine tools to foreign Govts., and concerns for mfr. of ordnance.

REGISTER OF CIVILIAN RECORDS

- DORSEY, F. F. (II) Patent Atty. and Engr., North East Electric Co., assisting in designing and testing electric apparatus for Navy Dept.; Adviser of employees in preparing questionnaires.
- DOW, R. E. (V) Asst. Supt., General Chemical Co., Bay Point, Calif., mfg. heavy chemicals and insecticides, especially sulphuric and nitrating acids.
- DOW, W. W. (IX) Asst. Treas., American International Shipbuilding Corp., Hog Island, Pa. (Page 391.)
- DRISCOLL, F. B. (I) Engr., American Telephone & Telegraph Co., 2 Feb. '18; Engr., Ordnance Works, Amatol, N. J., 30 Nov. '18. See Military Record.
- DU PONT, LAMMOT (I) Vice-Pres., E. I. du Pont de Nemours & Co., Wilmington, Del., in charge black powder mfr. (Pages 54 and 355.)
- EVANS, J. D. (I) Pres. and Organizer of the Evans Engineering Corp., loading 75mm. high-explosive shells for the U. S. Govt.; Vice-Pres. and Mgr., Atlantic Loading Co., loading high-explosive shells from 75mm. to 8", hand and rifle grenades, boosters, fuses, and drop bombs for Ord. Dept. (Page 364.)
- EVELAND, A. J. (III) Mining Engr. Applied for commission and active service in '17, refused as metal production was more important than military service. See Military Record.
- FERRIS, EMMA E. Worker and Hostess, Boston Army and Navy Canteen on Boston Common.
- FLEMING, E. P. (III) Research Metallurgist and Chemist, American Smelting & Refining Co., Salt Lake City, Utah, investigating metal losses, especially copper, lead and silver; investigation of methods of handling smelter gasses and fumes to prevent damage to live stock and vegetation.
- FLINT, C. K. (VI) Engr., Eastman Kodak Co., Rochester, N. Y.
- FOSTER, M. B. (VI) Chairman, Miscellaneous Sect., War Industries Bd., Washington, D. C.
- GALUSHA, A. L. (II) Mech. Engr., in charge Gas Producer Dept., Nelson Blower & Furnace Co., cons., design, erection and operation, marine power plants for U. S. and the Allies; designed and installed first marine gas producer plant to propel a vessel across the Atlantic Ocean.
- GRANT, H. L. (XIII) Mgr., Govt. Dept., Western Electric Co., Inc., New York City, producing radio telephone sets, field telephone and signal equipment, submarine detection apparatus, sound and flash ranging, and other technical equipment.
- GRAY, GRETA (IV) Red Cross Dietitian, engaged in Home Economics work, taught food conservation and home dietetics, had charge of influenza patients; Worker for Home Service, Red Cross.
- GREEN, E. H. (V) Treas., and General Mgr., Agawam Chemical Works, Inc., made chemicals, synthetic dyes and intermediates for War Dept.
- HALEY, D. F. (III) Asst. Mgr., Climax Molybdenum Co.; Consulting Engr., Ohio & Colorado Smelting Co.; Asst. Mgr., The American Metal Co., Ltd., cons. and supervision of plant for treating molybdenum ores for use in steels for Liberty Motors and tanks; discovered ore, developed and constructed 1,000-ton plant for treatment of these ores.
- HALL, G. D. (IV) Camp Planner, Camp Planning Sect., Cons. Div., War Dept., Washington; Field Supt., Cradock, Va., U. S. Housing Corp.
- HARRIS, C. H. (VI) Chief Electrical Engr., Mississippi Power Co., Keokuk, Iowa, producing power for mfr. of war materials and for public utilities.
- HENRICH, L. R. (IV) Draftsman, Bu. of Industrial Housing and Transportation, Boston, Mass.
- HILDRETH, H. E. (I) Director, Waltham Watch Co., assisted in development of timing devices.
- HOGLE, M. W. (II) in joinery dept., of shipbuilding plant.
- HYDE, A. T. (X) Supt., Fort Hill Chemical Co.; Mgr., Keokuk Plant, River Smelting & Refining Co., mfg. chlorate of potash, and electrolytic zinc.
- ISHAM, A. K. (II) Mgr., West Coast Iron Works, Seattle, Wash., mfg. ship fittings for shipbuilding corporations on West Coast.
- JEWETT, A. C. (II) Production Supt., later Supt. of Engr., Cartridge Dept., Winchester Repeating Arms Co., New Haven, Conn., producing cartridges, small arms and ammunition for Govt.
- KENNEDY, H. H. (VI) Div. Supt. of Traffic, New York Telephone Co., New York, general supervision of operation of telephone system for War Dept., O. T. C. Madison Barracks, Sacket Harbor, N. Y., and Camp Syracuse, Syracuse, N. Y.; Assistant, Fourth Local Draft Bd., Syracuse, N. Y.
- KLIEVES, A. L. (IV) Corp. Representative, Dept. of Labor, Bu. of Industrial Housing and Transportation, U. S. Housing Corp., Bethlehem, Pa.
- LACY, V. E. (XIII) Pres. and Mgr., Rochester Boat Works, Inc., Rochester, N. Y., built distribution-box boats for seacoast artillery.
- LANGE, T. F. (I) Purchasing Engr. and Asst. Mgr. of Cons., Nitric and Sulphuric Plants, Nitro Explosive Plant, Nitro, W. Va., mfg. smokeless powder.
- LAWRENCE, E. F. (IV) Chairman, Architects Comm. on War Housing; Member, Ex. Comm., Municipal Housing Corp.; Member, Ex. Comm., Portland (Ore.) Red Cross.
- LINCOLN, C. T. (V) Analyst and Insp., Medical Supply Depot, New York City.
- LORING, R. S. (I) Engr., Patterson-Macdonald Wood Shipyard, Seattle, Wash.; Engr., Mould Loft, Erickson Shipyard; Asst. Engr., Housing Project, Puget Sound Navy Yard, Bremerton, for U. S. Housing Corp.

TECHNOLOGY'S WAR RECORD

- McDANIEL, A. B. (IV) Special Assignment, Expediting, and later, Principal Engr., Cons. Div., U. S. A., in charge of the operation and co-ordination of work of various sections of the Div.
- MACDONALD, H. P. (I) Vice-Pres., Snead & Co. Iron Works, Jersey City, N. J., mfg. mine anchors, 75 mm. gas shells and airplane parts; Chairman, N. J. Comm., Industrial Training for War Emergency; Inventor of a heat method of treating airplane parts for Handley-Page Bombing Machines.
- McINNES, A. A. (I) Engr. and Purchasing Agent, and Asst. Supt., P. McGovern & Co., New York; employed on cons. of foundations, Boston Army Supply Base, Apr.—Sept. '18.
- MARCUS, H. C. (III) Member, American Protective League, San Francisco, Calif.
- MARSH, G. E. (VIII) Asst. Prof., Armour Institute of Technology, Chicago, Ill.; Inst., War Courses.
- *MERRILL, A. P. (IV) Draftsman, Los Angeles Dry Dock & Shipbuilding Co. Died, 13 Dec. '19.
- MILLER, S. B. (X) Supt., Deepwater Point Works, E. I. du Pont de Nemours & Co., mfg. picric acid and tetryl, refining benzol and toluol, etc. (Page 366.)
- MURRAY, RAY (I) Mgr., Seaboard Cons. Co., Philadelphia, Pa., erected bridges for the U. S. Railroad Adm.
- OBER, J. E. (V) Metallurgist, West Penn Steel Co., Brackenridge, Pa., in charge of mfg. and physical and chemical tests of sheet steel for use in airplanes; also mfg. apparatus for govt. work.
- PARROCK, H. P. (II) General Mgr., Lumen Bearing Co., Buffalo, N. Y., producing brass and bronze castings for Govt.; in charge of industrial and labor subscriptions, national and local campaigns, Red Cross, Liberty Loans, and United War Fund.
- PATCH, N. K. B. (II) Works Mgr., Lumen Bearing Co., Buffalo, N. Y., producing brass and bronze castings for Govt.
- PEPPERELL, W. S. (III) Asst. to Chairman, Comm. Production Engr., Council National Defense, in connection with production of cotton duck, uniform cloth and ordnance textiles; production and engr. problems pertaining to maintaining and increasing textile production; procuring coal, iron, steel and lumber for Draper Corporation, Hopedale, Mass.
- PERKINS, J. M. (VI) Works Mgr., Gilbert & Barker Mfg. Co., Springfield, Mass., measuring pumps, storage tanks, oil and gas furnaces; mfg. oil and gas furnaces for Base Supply Depot in France; built up trailers for anti-aircraft guns for War Dept.
- PLAYER, PRESTON (II) purchased heavy hardware and machinery for Q. M. Dept., New York.
- POTTER, P. A. (II) Treas. and Chief Ex., Crownshield Trading Corp., New York, representing producers of cotton, copper, silver, and sugar of Peru in purchasing their requirements and selling their product in the U. S.
- PUTNAM, H. A. (VI) Head of Electrical Testing Laboratory, Dept. 362, John A. Roebling's Sons Co., Trenton, N. J., inspecting electric wires and cables for Army and Navy; Electrical Engr. Member, Engineers Emergency Corps, Engineers Club, Trenton, N. J.
- PUTNAM, J. R. (II) Mach. Supt., Waterbury Clock Co., Waterbury, Conn.; supplied crystals for watch and instrument mfrs. for war purposes.
- RASH, F. D. (III) Vice-Pres. and General Mgr., St. Bernard Mining Co., Earlington, Ky., producing coal. See Military Record.
- ROBINSON, R. C. (V) Engr., in charge of mfg. in X-ray Dept., General Electric Co., Schenectady, N. Y.
- ROSE, C. R. (III) Supt. Works, The Hord Co., Lakeside, Neb., making potash for fertilizer.
- ROSS, J. A., JR. (XII) Prof. of Mech. Engineering, Clarkson College of Technology, Potsdam, N. Y., in charge of drafting course for enlisted men detailed for eight weeks' course in vocational training.
- ROWE, A. W. (X) Organized U. S. Base Hospital No. 44, for War Dept., Apr. '17; volunteered for Service in C. W. S., refused for physical disability; worked on questions in relation of the draft and S. A. T. C. to the Medical School and the male personnel of the Evans Memorial (Mass. Homeopathic Hospital), Boston, Mass. (Page 217.)
- ST. CLAIR, S. W. (IV) Architect, Emergency Fleet Corp. Housing Project, Bath, Me., Apr.—Sept. '18; Asst. Works Supt., Bridgeport Project, U. S. Housing Corp., in charge of field work. (Page 336.)
- SEAVER, EDWARD, JR. (II) Asst. Head, Performance Sect., U. S. Shipping Bd., Emergency Fleet Corp.; Asst. in charge steel ship cons., New England Dist.; New York Representative, Organization and Efficiency Comm., Atlantic Coast.
- SEXTON, F. H. (III) Vocational Officer, Quebec and Maritime Provinces; Military Hospitals Comm., Invalided Soldiers Comm. and Dept. Soldiers Civil Re-establishment, vocational training of invalided soldiers and re-establishment in civil life, Apr. '16—to date (Oct. '19). (Page 345.)
- SIMONDS, R. E. (II) Fire Protection Engr., Associated Factory Mutual Fire Insurance Cos., Boston, Mass., protecting mills and factories making war materials.
- SKENE, N. L. (XIII) Asst. Engr., Burgess Co., Marblehead, Mass., developing propeller shops and testing of materials for training planes for U. S. N.; tested struts, wires, turnbuckles and bolts, and supervised mfr. of propellers.
- SMITH, F. W. (I) Engr., Walsh Construction Co., building storage and other facilities, Rock Island Arsenal; Engr., in charge of building, Proving Grounds, Savanna, Ill., and storage facilities, Chicago Storage Depot; Investigator on Staff of Admiral F. T. Bowles, Hog Island Project.

REGISTER OF CIVILIAN RECORDS

- STOCKMAN, O. S. (III) Mgr., Armstrong Cork & Insulation Co., Pittsburgh, Pa., furnishing Nonpareil high pressure covering, corkboard and cork pipe covering for Emergency Fleet Corp. and navy boats and corkboard for cold storage work for Army in U. S. and in France.
- STONE, S. J. (I) Gen. Supt., The John W. Cowper Co., Inc., Buffalo, N. Y.; erected Curtiss Engineering Corp. Plant, Garden City, N. Y., Aeroplane Testing Field Barracks and other buildings, for Cons. Div., War Dept., at Buffalo, N. Y., Aeroplane Engine Testing Plant, Pierce-Arrow Motor Car Co., Buffalo, N. Y., and storage warehouses, Brooklyn Navy Yard. See Military Record and page 244.
- SULZER, A. F. (X) General Supt., Film Mfg., Kodak Park Works, Eastman Kodak Co., Rochester, N. Y., mfg. cellulose acetate, also mixing of acetate dope for airplanes.
- SWEETSER, W. J. (II) Prof., Mech. Engineering, University of Maine; Educational Supervisor, University of Maine, under direction of Comm. on Education and Special Training, War Dept., of vocational training of men as auto mechanics, gas engine mechanics, machinists, carpenters, blacksmiths, and electricians.
- TAFT, T. H. (II) Inst., School for Engr. Officers, U. S. Shipping Bd., preparing men to pass Inspectors' Examinations, since July '17. (Page 34.)
- TAYLOR, A. J. (XI) Resident Engineer, at Peniman, Repauno and Arlington works, E. I. du Pont de Nemours & Co. (Page 357.)
- THATCHER, E. G. (V) Maj., Mass. State Guard. Capt., Mass. State Guard, 4 June '17; Maj., 13 Sept. '19. Co. L, 3d Bn., 17th Regt., Mass. State Guard. Riot duty during Boston Police Strike.
- TRENHOLME, A. K. (IV) built wooden ships for French Govt. See Military Record.
- TUFTS, C. G. (X) General Supt., Semet-Solvay Co., Syracuse, N. Y., producing toluol, ammonia, benzol, foundry coke, and large quantities of T. N. T. and picric acid for Govt. and the Allies. (Page 363.)
- WALKER, F. B. (III) Engr., Fay, Spofford, & Thorndike, Boston, Mass., in charge of material, Boston Army Supply Base.
- WARREN, CARLETON, Supt., Worcester Gas Light Co., producing toluol.
- WEBSTER, F. B. (XIII) Draftsman, Bu. of Cons. and Repair, Washington, D. C., scientific work; Naval Architect, Concrete Ship Sect., Emergency Fleet Corp., Washington, D. C., and Philadelphia, Pa.
- WEIL, A. L. (II) copied drawings for war industries, including blue prints of German boats for U. S. Shipping Bd.
- WHITE, ROBERT, JR. (VI) Insp., Machinery and Machine Tools, Ord. Dept., Washington, D. C., and Watertown Arsenal, Watertown, Mass.
- WIGHT, R. W. (XIII) Special Inspection Service, for Council of National Defense, and for State Defense Council, State of New York. (Page 307.)
- WILLIAMS, L. E. (II) Marine Mgr., United Fuel & Supply Co., Detroit, Mich., in charge of fleet of boats supplying sand and gravel for construction and operation of war plants.
- WILLIAMS, R. L. (II) Engr., Submarine Signal Co., Boston, Mass.; Chief Mach., Class 4, Industrial Naval Reserve; invented special submarine sound screens and microphones; Asst., Naval Experimental Stations, New London, Conn., and Nahant, Mass.
- WOOD, H. I. (V) Lamp Engr., General Electric Co., New Jersey, developed electric incandescent lamps for Govt., for signalling, lighting airplanes and aviation fields.

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- ALLEN, C. B. (XIII) Asst. Head, Requisition Branch, U. S. Shipping Bd., Emergency Fleet Corp.
- ALSBERG, JULIUS (III) Principal Asst. to Chief of Div. of Fats and Oils, U. S. Food Adm., Washington, D. C. (Page 312.)
- APPLETON, A. L. (XIII) worked in connection with Draft Bd.
- BAETJER, HOWARD (I) Member of War Service Comm. of National Council of Cotton Manufacturers; in charge of operation of group of mills manufacturing canvas largely for use of Army, and Navy, and Emergency Fleet Corp.
- BALLARD, J. W. (II) Chairman for Red Cross, W. S. S. and United War Work Drives, Colrain, Mass.
- BATES, SARAH L. (V) Extension worker in N. H. for Red Cross, '17; demonstrated for local food conservation comms., '18; in charge of Farm Unit at Hamilton, Mass., summer '18.
- BLODGETT, G. R. (VI) Inspector, Asst. to Chief of Sect., and Inspection Mgr., New York Dist., Signal Corps, and Air Service, Sept. '17—June '18. See Military Record.
- BOARDMAN, CHARLES (XIII) Inspector and Production Expediter, U. S. Shipping Bd., Emergency Fleet Corp.
- BOSWORTH, H. O. (X) Pres., Denver Fire Clay Co., making scientific apparatus, chemicals, mining, and metallurgical items.
- BRAINERD, E. L. (I) Employment Supt., Russell Mfg. Co., Middletown, Conn., mfg. machine gun belts, cart-ridge belts, and other webs used in equipment.
- BREWER, C. D. (III) Sec.-Treas., Duluth Crushed Stone Co., supplying concrete aggregate for railroads and mining companies.
- BROWN, J. H. (VI) Insp. Engr., American Radiator Co., Philadelphia, Pa.; Member, Federal Fuel Adm.

TECHNOLOGY'S WAR RECORD

- CATES, L. S. (III) Sec., Selective Service Dist. Bd. No. 1, Arizona; Member, Arizona Council of Defense; County Chairman all Liberty Loan Campaigns.
- CHALIFOUX, P. E. (III) Treas. of all work drives; Director local chapter, Red Cross, Birmingham, Ala.
- CHAPMAN, H. M. (V) Supt., Semet-Solvay Co., Indianapolis, Ind.; assisted men in the filling out of their questionnaires for selective service. (Page 363.)
- COOK, W. L. (III) Mining Engr., Suffern Co., in the U. S. and South America, purchasing and importing war materials.
- CUTTER, E. H. (II) Factory Supt., Cutter & Crossette Co., Elgin, Ill., mfg. army shirts.
- DESLOGE, F. V. (III) Vice-Pres. and General Supt., Desloge Consolidated Lead Co., St. Louis, Mo., mining and producing pig lead for Govt.; Asst. Inspector, Bu. of Mines, regulating and enforcing Explosives Act.
- DICKSON, P. R. (XIII) Asst. Inside Supt., and Naval Architect, Hull Div., Navy Dept., Boston Navy Yard, directing new and repair work on all classes of govt. ships.
- DRISCOLL, JAMES (V) Supt. of Hedgman Rubber Co., Tuckahoe, N. Y., mfg. army goods.
- DURGIN, W. A. (VI) Chairman, Speaking Comm., Minute Men, Chicago, Ill. and responsible for 1000 speeches a week.
- EAGER, F. J. (III) Supt., Nickel Mines, Ontario, Canada, producing for the British War Office.
- EAMES, J. J. (II) Production Officer, Boston Dist. Office, Ord. Dept., carrying on investigations to determine the best method of mfg. newly designed articles, 15 Oct. '18—15 Dec. '18.
- EGAN, J. M., JR. (VI) Pres., Egan Construction Co., Aurora, Ill., govt. contractors for installation of water mains and drainage work at Camp Grant, Ill.
- EVERETT, H. A. (XIII) Prof. of Marine Engr., Post Graduate Dept., U. S. Naval Academy; Superintending Constructor for 110-foot submarine chasers in Annapolis Dist.
- FARMER, W. H. (I) Supt., Brandywine Works, E. I. duPont de Nemours & Co., mfg. black powder and war munitions for gas bombs, trench mortars, and torpedo charges. (Page 357.)
- FITCH, W. S. (II) Consulting Engr. with Monks & Johnson, Engrs., on Victory Plant, Squantum, Mass.
- FRANKLIN, D. R. (V) Mgr., S. M. Bixby & Co., Inc., New York City, supplying Belgian and U. S. Govts. with shoe dressings.
- FRENCH, G. H. (II) Mgr. and Engr., Berkshire Electric Co., Pittsfield, Mass., maintaining continuous service in twenty industrial plants including power station in textile plants mfg. cloth for uniforms.
- FRUIT, J. C. (IV) Ex. Works Mgr., American Ammunition Co., International Mfg. Co. and Canadian Electro Products Co., supplying French, English, and U. S. Govts. with time and percussion fuses for shells.
- GARDNER, ARCHIBALD (XIII) Chief Engr. of Cons., and Mgr. of shipyard at Jacksonville, Fla., Emergency Fleet Corp., Concrete Ship Sect., building eight concrete tankers. (Page 393.)
- GATES, T. P. (II) Textile Specialist on dyeing and finishing cotton and woolen goods for Govt. requirements; worked with Emergency Fleet Corp., assisting in the adjustment of claims due to cancellation of orders.
- GEROMANOS, H. W. (V) Special Agent and Expert in training conscripted men, Federal Bd. for Vocational Education, 1 Nov. '17—15 Apr. '18; Director of Road Training, Q. M. C., Camp Johnston, Fla., in charge of all motor vehicle instruction of men for overseas and domestic service, 16 Apr. '18—20 Sept. '18.
- GORFINKLE, EMANUEL (VI) Branch Mgr., Black & Decker Mfg. Co., Baltimore, Md., mfg. portable electric drills used on govt. war contracts and by navy yards; builders of 3" gun sights, 37mm. and 5" naval gun sights.
- HAMMOND, L. C. (I) Mgr., Thompson & Binger, Engrs. and Contractors, Port Chester, N. Y., building several reinforced factory bldgs. for essential industries.
- HANSEN, A. E. (XI) Supt. in charge of sub-contracts, Turner Construction Co., New York City, supervising construction of electric light and power, heating and plumbing, U. S. Fleet Supply Base, Brooklyn, N. Y.
- HARKNESS, A. F. (V) Chemist, Lewis Mfg. Co., Walpole, Mass., surgical supplies for Army and Navy, Amer. Red Cross, French and Canadian Govts.
- HASKELL, A. A. (V) Foreman, Assembly and Erection, E. B. Badger & Sons, Co., Boston, Mass., construction of munition plants. (Page 398.)
- HERVEY, E. M. (VI) Electrical Engr., Eastern Wisconsin Electric Co., Sheboygan, Wis.
- HOOKE, PAUL (II) Asst., Hooker Electrochemical Co., Niagara Falls, N. Y., engaged during the war with supplying essential chemicals to the Ord. Dept. and various other govt. depts.
- HUNT, H. N. (II) Marine Engr., and Boiler Draftsman, Mare Island Navy Yard, Calif. (Page 249.)
- HUNTER, F. H. (IV) worked in connection with Govt. housing projects in New England; with Fay, Spofford & Thorndike on Boston Army Supply Base.
- KINGSBURY, N. J. (VI) Supervision of Developments, General Manufacturing Dept., General Electric Co., Schenectady, N. Y.
- LARRABEE, H. D. (VI) Member, Local Public Safety Comm., Naval Consulting Bd. Survey, Regional Comm. on explosives, Montpelier, N. H.
- MAGUE, F. J. (I) General Supt. of Cons., Q. M. Dept., superintending construction of Army Base Piers at Bush Bluff, Va., and Big Bethel Water Development, Hampton, Va., Oct. '17—May '19.

REGISTER OF CIVILIAN RECORDS

- MARVIN, J. R. (II) Asst. Registrar, Assoc. Legal Adviser, Draft Bd.
- MATHEIUS, FREDERICK, JR. (IV) Chief of Project Supervisors, and Ex. Asst. to Chief of Cons., Housing Bu. of the U. S. Shipping Bd., Emergency Fleet Corp., having general supervision of housing projects along Atlantic and Great Lakes.
- MAY, H. S. (II) Mgr., General Bakelite Co., New York City, mfg. "Bakelite" used for electrical insulation, by War and Navy D-pts., especially in wireless apparatus, and the electrical equipment on motor cars, trucks, tractors and aviation motors.
- MILLAR, L. W. (XIII) Asst. Inspector of Naval Cons., C. C., U. S. Navy Dept. Boston Navy Yard, Oct. '17—Aug. '18; Office of Superintending Constructor, Bethlehem Shipbuilding Corp., Quincy, Mass. Aug. '18—1 Feb. '19.
- MILLER, T. G. (II) Div. Supt. of Plant, American Telephone & Telegraph Co., Chicago, Ill.; Gen. Supt. of Plant, New York City.
- MORE, A. S. (I) Sales Mgr. and Asst. Sec. Bay State Milling Co., Winona, Minn., mfg. flour for Army and Navy; Member of Advisory Bd., Draft Bd.; Dist. Chairman on Liberty Loans, and Red Cross drives; City Chairman on United War Work Campaign.
- MORSE, J. R. (I) Production Executive on electric and gas locomotives for U. S. Arsenals and Proving Grounds, General Electric Co., Erie, Pa.
- MORSE, W. V. (III) Asst. Mgr., Tacoma Smelter, American Smelters Securities Co., Tacoma, Wash., producing seven thousand tons of refined copper per month for Govt.
- NASH, A. E. (X) Member, Development Dept., E. I. du Pont de Nemours & Co., Wilmington, Del., investigating supplies of essential raw material.
- NELSON, A. T. (I) Supervising Engr., Navy Dept., League Island Navy Yard, Pa., Nov. '17—Apr. '19; Principal Asst. to Engr. in charge of construction for Bu. of Yards and Docks, Nov. '17—Dec. '18; in charge of financial settlements with all contractors.
- NELSON, E. E. (VI) General Supt., Blackstone Valley Gas & Electric Co., Pawtucket, R. I.
- NICHOLS, A. R. (IV) Town Planner, U. S. Housing Corp., for Housing Project at Portsmouth, N. H.
- O'NEILL, J. F. (II) Inst., School of Military Aeronautics, M. I. T.; Engr. Off. Sch., 7 Jan. '18.
- PATCH, C. E. (XIII) Mgr., Schedules Dept., Supply Div., for Emergency Fleet Corp., in charge of production records of ship equipment, Washington, D. C.; Ex. Head, Registration Branch, Philadelphia, Pa., in charge of receipt of and action on all orders for ship equipment.
- PEARSON, P. C. (V) Civilian Chaplain of the Episcopal Church at Camp Devens under the War Comm. of the Episcopal Church.
- PENDERGAST, R. B. (VI) Asst. Director, Bu. of Branches and Customs, War Trade Bd. (Page 312.)
- PHILBRICK, B. G. (VII) 1st Lt., Sn. C., Mass. State Guard. Pvt. Co. E, 15th Regt., 13 Aug. '17—8 May '18; attached to Commonwealth Military Emergency Hospital, 8 May '18—2 June '19.
- PLACE, C. R. (II) Consulting Engr. for Mechanical, Electric and Sanitary Systems for U. S. Shipping Bd., James Stewart & Co., Inc., Studebaker Corp., Niles-Bement-Pond Co.
- POLLARD, E. T. (II) Pres., Pollard Mfg. Co., Niagara Falls, Ontario, mfg. a quantity of single purpose lathes for Russian, French, and English shells, cut off and base facing machines for 12" marine shells for U. S. Govt.
- POPE, H. L., Factory Mgr., Wright-Martin Aircraft Corp. of Calif., and Wright-Martin Aircraft Corp. of New Brunswick, N. J., mfg. airplanes and Hispano-Suiza airplane engines; visited England and France and made reports to Bu. of Aircraft Production on investigations of airplane engine situation, Aug.—19 Oct. '18.
- POPE, R. A. (IV) Town Planner, Emergency Fleet Corp.; designed town of Noreg, near Gloucester, N. J., for Govt., the town of Yorkship, for E. D. Litchfield; designed town for Air Nitrates Co. at Muscle Shoals, Ala., for Ewing & Allen. (Pages 369 and 373.)
- PROCTOR, REDFIELD (II) Red Cross Director for State of Vt., in entire charge of work throughout the state including organization of branches and first membership and financial drives. See Military Record.
- PUTNAM, WALTER (I) Asst. Engr., Wright-Martin Aircraft Corp. of Calif., Oct. '17—Jan. '18; Shipfitter, Los Angeles Shipbuilding & Dry Dock Co., Jan. to fall of '18. See Military Record.
- REYNOLDS, I. W. (VI) Production Engr., The Foxboro Co., mfg. airplane thermometers for England, airplane speedometers for U. S. Army and Navy, and airplane thermometers for the Navy.
- RICE, W. M. (XIII) Chief Inspector, North Atlantic Dist., U. S. Shipping Bd., Emergency Fleet Corp., May '18; Asst. Mgr., Mch. '19; Mgr., June '19, in charge of shipping.
- RITCHIE, A. E. (II) Member of firm, E. S. Ritchie & Sons, Brookline, Mass., mfg. nautical instruments of all kinds for U. S. Navy Dept., and U. S. Shipping Bd.
- ROBBINS, F. A., JR. (II) General Mgr., Sutton Plant, Bethlehem Steel Co., Sutton, Pa.
- ROBINSON, J. A. (X) Sp. Agent for safety and hygiene, Federal Bd. for Vocational Education, Washington, D. C.; worked under the Rehabilitation Act, in regard to the placement of disabled soldiers, sailors and marines.
- ROOT, F. T. (X) Asst. Director, Bu. of Exports of War Trade Bd., Washington, D. C.
- SAWYER, C. A., JR. (III) in charge of construction of acetone and toluol plants with George A. Fuller Co.; with Howes Bros. Co., Boston, Mass., mfg. shoes for Army.

TECHNOLOGY'S WAR RECORD

- SEARS, W. H. (II) with Bu. of Yards and Docks, Navy Dept., in charge of Materials Department for construction of War and Navy Office Building, Washington, D. C., 5 Mch. '18; Supervising Engr., U. S. Naval Ordnance Plant, South Charlestown, W. Va., 1 Oct. '18—Mch. '20.
- SEXTON, MAY BEST (Mrs. F. H.) Official Speaker for Red Cross in N. S.; Supt. of work in Halifax; First Vice-Pres. for Province of N. S., Aug. '14—Mch. '19; Member, Red Cross Society and Imperial Order, Daughters of Empire.
- SHEDD, C. L. (I) Structural Draftsman, Boston & Maine R. R., Boston, Mass., designing jack knife drawbridges, etc.
- SHERMAN, H. L. (V) Chief of Inspection, War Dept., Cons. Div., Washington, D. C., July '18—Feb. '19; Member of Ex. Comm., Belmont Public Safety Comm., Belmont, Mass.
- SISSON, C. H. (III) helped Dayton-Wright Aircraft Corp. make airplanes for A. E. F.
- STARR, C. D. (II) Supt., Barstow Stove Co., Providence, R. I., mfg. heaters, grates, and ranges for cantonments, Army and Navy depots, and housing projects.
- STILLINGS, H. E. (II) Customs Inspector, Boston, Mass., '06—3 Nov. '18. Customs work included seizure of German ships at Boston, espionage work and supervision export licenses; on leave while on active service. See Military Record.
- STURTEVANT, E. W. (II) Pres., Hodgart & Co., Chicago, Ill., supplying Govt. with pumps, turbines, and motors.
- SWEETSER, MABEL WALL (Mrs. L. W.) (V) Member, Red Cross Motor Corps; Dist. Chairman for four Liberty Loan Campaigns; Vice-Chairman for Town in the Fifth Liberty Loan Campaign, Wakefield, Mass.
- TAYLOR, W. C. (I) Asst. Prof. of Civil Engr., Union College, Schenectady, N. Y., giving military men courses in surveying and sanitation.
- TEAGUE, W. O. (XIII) Inspector, Naval Cons., Navy Dept., in charge of repairs and alterations of govt. vessels at private shipyards in vicinity of Boston, Mass.
- THOMAS, C. S. (III) Asst. and Consulting Geologist and Mgr., oil development operation in Texas for Union Oil Co. of Calif.; applied for enlistment in govt. service, Oct. '17, but not accepted.
- THOMSON, D. P., Designing Engr., General Electric Co., Lynn, Mass., designing motors and generators.
- TROWBRIDGE, H. O. (II) Dist. Officer and Asst. Dist. Officer, 1st Dist. (Boston), U. S. Shipping Bd., Emergency Fleet Corp.
- TURNER, H. C. (XIII) Vice-Pres., The Lamson Co., Boston, Mass., supplying conveying machinery to the Army, Navy and munition plants.
- UPHAM, E. L. (IX) Member, Newton (Mass.) Constabulary, performing regular police duty at times.
- VATTER, W. L. (VI) Div. Supervisor of Equipment, Eastern Div., Western Union Telegraph Co., New York City, in charge of all equipment, new installations, maintenance, estimating, and installing inside equipment.
- VAUGHN, L. E. (IV) Quantity Engr., and Purchasing Agent, Fiske-Carter Construction Co., Worcester, Mass.; worked in connection with the construction of Camp Wadsworth.
- WALES, R. L. (X) Dean of Engr., R. I. State College, in charge of the training of specialists for the Army under Comm. on Education and Special Training of the War Dept., May—Sept. '18; in charge of engineering work of the S. A. T. C.
- WEEKS, PAUL (II) Technical Asst. to Tank Engr., Holt Manufacturing Co., Washington, D. C., designing Tanks, 26 Dec. '17—29 Apr. '19. See Military Record.
- WELCH, W. W. (III) Supt., Open Hearth Dept., La Belle Iron Works, Steubenville, Ohio, making shell, auto, and ship plate steel; Capt., American Protective Society, under U. S. Secret Service; Capt., Liberty Loan, Red Cross, and War Fund Campaigns.
- WELD, LYDIA G. (XIII) established Western Office, San Francisco, Calif., Prod. Div. of the Emergency Fleet Corp.; assisted in Red Cross work, as well as the various drives for war funds.
- WESTCOTT, H. W. (II) with Brown & Sharpe Mfg. Co., supplying many gauges, tools, and machines to the Govt. and others directly engaged in munition production.
- WETMORE, W. L. (II) Chief Mechanical Engr., copper smelter of Granby Consolidated Mining Smelting & Power Co., Ltd., Anyox, B. C., Canada; Engr. on repairs and maintenance of smelter and construction of coke plant, and additions to docks, smelter and town.
- WHITNEY, R. F. (II) Pres., and Treas., Whitney Machine Co., Winchester, Mass., mfg. leather-working machinery used by tanners in preparing hides for tanning.
- WILLIAMS, R. S. (V) co-operated with the Ord. Dept., in the metallographic inspection of brass cartridge cases and aided in the preparation of specifications for tests; directed much of metallographic work on shell cases made in Boston Dist.; investigation work on some of the non-ferrous alloys used in airplane parts, for Aluminum Castings Co.; worked on Liberty Motor bearings.
- WOOD, A. C. (IV) Architectural Draftsman, with J. E. McLaughlin, Boston, Mass., U. S. Housing Corp., Bu. of Labor, working on housing for Fore River Shipbuilding Corp., and hospital bldgs. for State of Mass.
- WRIGHT, C. L. (X) on General Staff, Bu. of Industrial Research, War Dept., Purchase, Storage and Traffic Div.; made investigations at Camp Grant, Camp Dodge and Camp Funston, to find means of profitably disposing of stable and corral manure of camps, 14 Aug. '18—1 Jan. '19.

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- ADAMS, L. W. (II) Supt., Sancon Plant, Bethlehem Steel Co.; General Supt., Nova Scotia Steel & Coal Co., mfg. steel and forgings for shells and marine machinery for Canadian Govt.
- ALLEN, A. B. (II) Asst. Supt., New York Mutual Gas Light Co., New York City, in charge of toluol plant erected by Govt. on Company's property, June—Nov. '18.
- ANCONA, J. F. (II) Member, Ex. Comm., Manufacturers' Council and War Inventors' Council, design and supervision of industrial buildings and equipment.
- AYLSWORTH, J. W. (II) General Office Engr., on construction of U. S. Aircraft Repair Shop, Queenstown, Ireland, and U. S. Nitrate Plant No. 2, Muscle Shoals, Ala.; Engr., plant extensions, Savage Arms Corp., Sharon, Pa.
- BABSON, R. D. (III) Vice-Pres. and General Mgr., Baush Machine Tool Co., Springfield, Mass., mfg. tools for govt. work.
- BALL, S. Y. (I) Pres., The Norris, Alister-Ball Co., Chicago, Ill.; firm conducted military watch inspection for officers and men going overseas; Vice-Chairman, Comm. on Liberty Loans, Red Cross, and other campaigns for Chicago Dist.
- BATES, J. R. (I) Vice-Pres., Wonham Bates & Goode, Inc., New York City; held important contracts for U. S. and allied Govts., also for companies doing war work.
- BLUNT, KATHERINE (V) Assoc. Professor, Food Chemistry, Home Economics, and Chairman Home Economics Dept., University of Chicago, Sept. '17—Jan. '18; wrote simple food leaflets for U. S. Dept. of Agriculture, Jan. '18—June '18; Wrote, "Food and the War" for U. S. Food Adm.
- BRADSHAW, G. B. (X) Supt., Intermediates, du Pont Dye Works, Wilmington, Del., mfg. picric acid from synthetic phenol for French Govt.; Pres. and General Mgr., American Synthetic Color Co., mfg. poison gas.
- BRIDGES, J. S., JR. (VIII) 3d Mate, U. S. Merchant Marine. Student, U. S. Shipping Bd., Navigation School, M. I. T., Sept. '18; 3d Mate, grade Junior Officer, Nov. '18.
- BROWN, F. Z. (VI) Maj., Maine Inf., Nat. Guard. Recruiting Officer and Drill Master, 3d Maine Inf., National Guard, '17—'18; Capt., June '18; Maj., 28 July '18.
- BROWN, S. P. (I) Cons. Mgr., George A. Fuller Co., Boston, Mass.; built a toluol plant at Everett, Mass., and an acetone plant at Mechanicsville, for govt. requirements.
- BRYAN, C. A. (I) General Mgr., Carlisle Construction Co., Carlisle, Pa., construction and layout Camp Colt, Gettysburg, Pa. See Military Record.
- CARMICHAEL, G. P. (IV) Architectural Draftsman, Bu. of Yards and Docks, Navy Dept., Washington, D. C., 22 Apr. '18—1 July '19, designing ammunition plants for naval stations.
- CHENEY, J. T. (II) Asst. Consulting Engr., water and sewer installation, Camp Custer, Battle Creek, Mich.
- CLARK, M. H. (V) Mgr., General Footwear Factory, U. S. Rubber Co., mfg. rubber boots and shoes for Allies' Armies.
- COX, F. G. (II) Edge Moor Iron Co., Del., mfg. railroad equipment and munitions.
- CRONENBOLD, E. J. (XIII) Supt., Building Cons., Post & McCord, New York City, supervising erection of bldgs. and Federal Shipyard, Kearney, N. Y., and superstructures, three piers, U. S. Army Supply Base, Brooklyn, N. Y.
- CROSBY, HEWITT, (XIII) General Supt., Foundation Co., New Orleans, La., under U. S. Shipping Bd., Emergency Fleet Corp.; at Passaic River, Newark, N. J., in charge construction ten standard ferris hulls.
- CROSS, W. P. (XIII) Shoe Pattern Mfg., Rochester, N. Y.
- CROWELL, A. W. (I) Senior Civil Engr., and Chief Draftsman, Cons. Div., War Dept., supervising 200 draftsmen; in charge Drafting Sect., Cons. Div., from its inception, May '17.
- CUSHMAN, J. A. (I) Asst. Cons. Engr., Turners Falls Power and Electric Co. and Resident Engr., Connecticut River Conservation Co., engaged in construction of steam power plant, and construction and repair of three small dams for water conservation, Apr. '17—June '19.
- DENHAM, H. S. (VI) Asst. Master Mechanic, Boott Mills, Lowell, Mass., mfg. govt. supplies.
- DOOLEY, J. J. (VI) Supt. of Maintenance and Repairs, Anniston Steel Co., Anniston, Ala., makers of steel castings for transport fleet and parts of tanks.
- DORAN, J. F. (II) Member of firm, Doran Bros., Danbury, Conn., repaired and built cartridge machinery for Govt.; Member, Ex. Comm., War Bd., and Asst. Mgr., War Fund Drives, Danbury, Conn.
- DURANT, F. C., JR. (XIII) Organizing Sec., Treasury Dept., for forty-six counties in Pa.; Member, Central Comm., Liberty Loans, 3d Federal Reserve Dist.
- EUSTIS, A. H. (III) Active Operating Head, The Eustis Mining Co., Canada, producing copper-bearing pyrites; with Virginia Smelting Co. and the Virginia Industrial Chemical Co., West Norfolk, Va. treating pyrites cinder from ores of Eustis Mining Co. See Military Record.
- EUSTIS, F. A. (III) Special Agent, Mch. '17—31 Jan. '19; Asst. Mgr., 16 Apr.—8 June '17, Trustee, 16 Apr.—29 Oct. '17; U. S. Shipping Bd., Cleveland, Ohio, in charge of moving lake steamers to the Atlantic. (Page 333.)
- FAIRLIE, A. M. (V) Chem. Engr., mfg. sulphuric acid for munitions; Chairman, Local Comm., W. S. S. Drive, Atlanta, Ga.

TECHNOLOGY'S WAR RECORD

- FALES, H. H. (II) General Supt., Champlain Silk Mills, New York City, mfg. silk yarn for cartridge bag cloth.
- FERRIS, M. Y. (I) Director, State Military Census for Essex Co., N. Y.; Chairman, W. S. S. Comm. and United War Work Campaign; Sec., Essex Co., Home Defense Comm.
- FIREY, M. J. (IV) Chairman, Hotel Div., Fuel Adm., State of Kan.; City Chairman, W. S. S., City of Hutchinson; Asst. Food Adm., Reno Co., Kan.; Chairman, Men's Div., Red Cross, Hutchinson, Kan.
- FISCHER, A. L. (VI) Draftsman, Ford Motor Co., Detroit, Mich., drawings for twenty-one machines for making one size airplane bushings for the Liberty Motor.
- FLETCHER, S. A. (VI) Supt. of Service, Alabama Power Co., Birmingham, Ala., in entire charge of meters in a hydro-electric power company serving essential industries. (Page 376.)
- FORBES, E. D. (VI) Expert Radio Aid, Machinery Div., Bu. Steam Engr., Navy Dept., Navy Yard, Philadelphia, Pa., working on development, design, mfg. and installation of radio apparatus for Navy, Sept. '14—May '19; directed installation of radio apparatus on battleships, destroyers, transports, and Emergency Fleet ships built in Fourth Naval Dist.; in charge of maintenance of all radio equipment on naval ships based at Navy Yard, Philadelphia, Pa.
- GARCELON, G. H. (VI) Engr., Small Motors Sect., Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pa.; Field Aid, Naval Consulting Bd. in Industrial Inventory; trained company of Home Defense.
- GILKER, W. M. (VI) Traffic Methods Engr., Southwestern Telegraph & Telephone Co., Dallas, Texas, preparing operating instructions for handling and supervision of telephone traffic at army camps in Texas.
- GILSON, J. L. (IX) (XIII) Engr., Chemical Dept., in charge of plant control of organic operations, E. I. du Pont de Nemours & Co., Wilmington, Del.
- GOODWIN, E. G. (III) Fuel Agent, Southern Railroad Lines (Lines East) and Associated Railroads, Knoxville, Tenn., distributing empty coal cars, purchasing and inspecting fuel coal.
- GOULD, L. B. (VI) Div. Plant Engr., New England Telephone & Telegraph Co., N. H. Div., Manchester, N. H., under Govt. control, 1 Aug. '18—31 July '19.
- GRABER, H. T. (V) Assoc. Member, Naval Consulting Bd. of Mich., making industrial inventory of State for Bd.
- GREEN, C. F. (III) Supt. of Cons., Stone & Webster, Boston, Mass., working on industrial bldgs. in Pittsburgh and Youngstown districts.
- GREENE, G. M. (V) Asst. Supt., Colgate & Co., Jersey City, N. J., producing anti-dimming compound for use on lenses of gas masks, sag paste for prevention of gas burns, soaps for Army, Navy, and Marine Corps, and glycerine for powder mfr.
- HAGGART, C. N. (I) Asst. Yard Supt., later Material Supt., American International Shipbuilding Corp., checking shop dumps and supplying material to ten ways.
- HAMILTON, T. M. (III) volunteered for Engrs., but told to remain as mining engineer. General Supt., Andes Exploration Co., in Peru and Chile.
- HASKELL, RAYMOND (VIII) Civilian Scientist and Head of a Dept., Naval Experimental Station, New London, Conn.; work of secret nature not yet allowed to be published.
- HOWARD, J. W. (I) Inst., U. S. Army School of Military Aeronautics, M. I. T.; Inst. in charge of School of Navigation, U. S. Shipping Bd., Portland, Maine. (Page 31.)
- HOWELL, E. W. (I) Sales Mgr., Continental Paper Co., Bogota, N. J.; in charge five Liberty Loan, three Red Cross, War Chest and Y. M. C. A. Drives, and three Red Cross Roll Calls.
- KERSHAW, G. E. (XIII) Engr. in Chief of Marine Dept., Locomotive Superheater Co., New York City, supervising installation of superheaters on transports, cargo carriers, and merchant vessels.
- LATHAM, B. W. (II) Asst., later Chief Mechanical Engr., Cass Gilbert, Architect, New York City; mechanical and electrical installation at Army Supply Base, Brooklyn. (Page 322.)
- LEE, L. H. (VI) Asst. Mgr., Electric Service Co., Inc., Tacoma, Wash., installing electric wiring and equipment on ships built in Tacoma for French Govt.; Engr., Concentration Plant, Tacoma, U. S. Shipping Bd., Emergency Fleet Corp.
- LOCHRIDGE, E. E. (XI) Chief Engr., Springfield Waterworks, in charge water supply for City of Springfield, Mass., U. S. Armory, Westinghouse and other large munition plants.
- LOCKE, H. A. G. (II) Treas., Mt. Holly Paper Mills, Inc., Boston, Mass., mfg. paper for Brooklyn and Norfolk Navy Yards and Marine Corps, Philadelphia, Pa.
- LORD, F. K. (XIII) Inspector, Hull Construction, 110 ft. submarine chasers, Navy Dept.
- LOUGHLIN, G. F. (XII) Geologist, in charge Non-metal Resources Div., U. S. Geological Survey, Washington, D. C. Specialist on rock products; wrote "Our Mineral Supplies" in bulletin for U. S. Geol. Survey; prepared map for War Dept., showing available materials for rapid road construction in Eastern France; prepared report for Navy Dept. on the most suitable stones to meet requirements of new design of nitric acid towers.
- MACCORNACK, CLYDE (I) Chief Engr., The Phoenix Bridge Co. and The Phoenix Iron Co., Phoenixville, Pa., in charge of contracts for fabricated steel for France and for requirements in the U. S.; Chairman, Phoenixville Red Cross; Chairman, War Chest; Acting Chairman, Fourth Liberty Loan.
- MACDONALD, G. M. (II) Ballistic Engr., The Remington Arms Union Metallic Cartridge Co., Bridgeport, Conn., mfg. cartridges for England, Serbia, France, Belgium, Canada, Russia, and the U. S., '14—'19.
- MACGREGOR, R. J. (VI) Member, Local Bd. under Selective Service Act, Div. No. 1, Co. of Penobscot, Maine, 29 June '17—4 June '18.

REGISTER OF CIVILIAN RECORDS

- McINTOSH, C. J. (II) Supervised design and fabrication of steamers, also fabrication of ship material for other vessels, U. S. Shipping Bd., Apr.—Oct. '18. See Military Record and page 392.
- McKELVEY, L. B. (III) Member, The American Protective League, Youngstown, Ohio.
- McMENIMEN, W. V. (I) Vice-Pres., Raymond Concrete Pile Co., engaged in construction work on Q. M. Terminals, Norfolk, Va. and New Orleans, La., Hog Island Shipyard, Staten Island Shipbuilding Co., Bethlehem Shipbuilding Co., and Ford Eagle Boat Plants.
- MANAHAN, R. F. (III) Asst. General Mgr., Mexican Mining Dept., Smelting & Refining Co., producing copper, lead, zinc, silver, and molybdenum.
- MASON, S. N. (X) Chemist, Ayer Mill, American Woolen Co., Lawrence, Mass., buying and testing dyestuffs and chemicals used in mfg. cloth for Army and Navy uniforms.
- MEARS, J. A. (VI) Pres., South Brooklyn Machine Corp.; machined 3" English H. E. Shells and 3" H. E. shells for U.S.; Purchasing Agent, Air Nitrates Corp., New York City. (Page 366.)
- MILLARD, E. H. (II) Mgr. of Works, Riter Conley Mfg. Co., Pittsburgh, Pa., mfg. fabricated steel material for ships at Hog Island, torpedo tubes for Navy, gun boring lathes for Army, blast furnaces and steel bldgs. for Steel Companies, fabricated steel and equipment for by-product ovens for gas companies.
- MORLEY, H. M. (VI) Head of Div. of Elementary Electricity, U. S. Army Air Service School for Radio Operators, Austin, Texas.
- MULHERN, C. P. (I) Sec., Treas. and Mgr., Augusta Veneer Co., Augusta, Ga., mfg. poplar veneer for airplanes for U. S., British and French Govts.
- NUTTER, H. G. (VI) Sgt., Mass. State Guard. Pvt., State Guard, 21 June '17; Corp; Sgt.; guard duty on Hoosac Tunnel Docks, Charlestown, Mass., and on Mystic and Cunard Docks, East Boston, Mass., Dec. '17; Supt. of Wires, Fire Alarm and Police Signal, and Inspector of Wires, Chelsea, Mass.
- PALMER, V. M. (II) Sp. Asst. to Mgr., Hawkeye Plant, Eastman Kodak Co., aerial camera lenses, gun sights for rifles and airplane guns, trench periscopes, etc.; Chairman, Sub-Comm., Industrial Sect., Liberty Loan and Red Cross Campaigns, Rochester, N. Y. (Page 409.)
- PARKER, P. R. (XIII) Production Mgr., Yuba Mfg. Co., mfg. traction engines, centrifugal pumps, and dredges; Vice-Pres. and General Mgr., Benicia Shipbuilding Corp., Berkeley, Calif., building wooden steamers for U. S. Shipping Bd., Emergency Fleet Corp., Aug. '18.
- PELTON, E. W. (II) Supt., The Stanley Works, New Britain, Conn., producing war supplies; Chairman, Conservation Comm., and U. S. Fuel Adm., New Britain; Chairman, Comm. on War Gardens, War Bu.; Member, American Protective League under Dept. of Justice.
- POTTER, P. J. (III) Food Adm. for Pasadena, Calif., Dept. of Conservation of Food Supplies, U. S. Food Adm.
- PORTER, C. H. (VI) Comptroller, W. H. McElwain Co., Boston, Mass., mfg. army and civilian shoes.
- PORTER, S. G. (I) Asst. Chief Engr. and Acting Commissioner of Irrigation, Dept. of the Interior, Dominion Govt., Canada; Supt., Operation and Maintenance, Lethbridge Sect., Engr. Branch, Dept. National Resources, Canadian Pacific Railway Co., Lethbridge, Alberta, in charge of irrigation system necessary for agricultural production, Aug. '18.
- POTTER, A. A. (VI) Assoc. Member, Naval Consulting Bd. and Director for Industrial Preparedness for Kansas Feb. '16; Dist. Educational Director, Comm. on Education and Special Training, General Staff, War Dept., directing training of technicians and mechanics in colleges and universities in Kan., Mo., Neb., N. and S. Dak., Iowa, Wyo., Colo., and Minn.
- PULSIFER, H. B. (V) Metallurgist, University of Chicago, Aug. '17; Professor of Metallurgy, Montana State School of Mines, Butte, Mont., '17—'19.
- PULSIFER, JULIA (V) (VII) Boston City Leader, Emergency Food Conservation, States Relations Service, U. S. Dept. of Agriculture, organization of food conservation work, meetings, propaganda.
- RATHBUN, F. DeG. (III) Supt., Metcalf Div., The Arizona Copper Co., Ltd., Metcalf, Ariz., producing copper; Chairman, Town of Metcalf, Bond Issues, War Stamps, Red Cross and United War Work Drives.
- REGESTEIN, W. P., (V) Chief Chemist, Haskell Plant, and Asst. Div. Head, Black and Smokeless Div., du Pont Experimental Station, Henry Clay, Del.
- SAMMET, C. F. (V) Technical Adviser, Crane & Co., Dalton, Mass., mfg. Liberty Bond and Currency Paper for Govt.
- SCHOLTES, A. J. (IV) Designer, James E. McLaughlin, Architect, Boston, Mass., of houses for employees of Fore River Works, Quincy, Mass.
- SHURTLEFF, MARGARET H. NICHOLS (Mrs. A. A.) (VII) one of the founders of Food Economy League, Boston, Mass.
- STILES, H. A. (III) Partner, H. A. Stiles & Co., Boston, Mass., mfg. drop forgings and brass goods for Army and Navy.
- THOMPSON, E. C. (II) Pres. and General Mgr., Boston Pencil Pointer Co., New York City, mfg. French type detonating fuses.
- THWING, L. L. (II) Dist. Appraisal Officer and Valuation Engr., Alien Property Custodian Dept., Buffalo, N. Y.
- TOLMAN, R. C. (X) Chemical Expert at large, Ord. Dept., Washington, D. C., Sept. '17; Chief, Dispersoid Sect., American University Experiment Station, Apr. '18, developing methods of dispersing toxic gases. See Military Record.

TECHNOLOGY'S WAR RECORD

- TUELL, S. B. (I) with American International Shipbuilding Corp., Hog Island, Pa. (Page 391.)
- WELSH, J. W. (VI) Engr. of Passenger Transportation for New York Dist., Div. of Passenger Transportation and Housing, U. S. Shipping Bd., Emergency Fleet Corp., New York City.
- WHITCOMB, W. H. (V) Director, Laboratory Control, U. S. Rubber Co., New Haven, Conn., mfg. footwear and gas masks for Govt.
- WILSON, D. S. (VI) Production Engr., U. S. Shipping Bd., Emergency Fleet Corp., supervising mfg. plants and speeding production; Engr. on Purchases, Aberthaw Construction Co., Boston, Mass.; purchased material and equipment for Squantum Victory Plant and munitions and mfg. plants in New England.
- WINCHESTER, H. T. (VI) with American International Shipbuilding Corp., Hog Island, Pa. (Page 391.)
- WOOD, G. B. (II) Pres. and General Mgr., Rockland & Rockport Lime Co., Rockland, Maine; Chairman, for Home Service, Knox Co. Chapter, Red Cross; Member, Knox Co. Comm. of Public Safety; New England Representative, War Service Comm. on Lime, appointed by War Industries Bd.

1904

- ALLBRIGHT, E. F. (I) Inventor of new type of reinforced concrete floor cons.; use of this cons. without royalty offered to Govt. for the duration of war.
- ARNOLD, P. M. (II) Mgr., The Pyrites Co., Ltd., Wilmington, Del., producing low phosphorus, low copper, raw materials for mfr. of low phosphorus steels for govt. requirements and gun forgings.
- ATKINS, G. E. (XIII) Asst. New Work Supt., Navy Yard, Mare Island, Calif. (Page 249.)
- BALDWIN, J. R. (II) Asst. Engr., Essex Co., Lawrence, Mass.; Member Legal Advisory Bd., Selective Service.
- BALLOU, R. H. (VI) Treas. and General Mgr., Manhasset Mfg. Co., Providence, R. I., mfg. duck for govt. tents, wagon covers, and leggings.
- BARTLETT, A. W. (X) Chief Engr., American Water Softener Co., Philadelphia, Pa., furnishing water softeners and filters for govt. munitions plants.
- BASCOM, C. P. (XIII) Mgr., St. Louis Plant, Fayette R. Plumb, Inc., mfrs. of Russian bayonets for Servian and Russian Govts., trenching pick mattocks, trenching hand axes, cavalry picket pins, bolo scabbard mouth pieces, and bolo knives, commercial type, for U. S. Govt. (Page 366.)
- BEE, A. W., JR. (I) Engr. in charge cons., Sulphuric Acid Plant, Nitro, W. Va.; Purchasing Agent, U. S. Sulphuric Acid Plants, Cuba City and Benton, Wis.; Cons. Mgr., U. S. Sulphuric Acid Plant, Emporium, Pa.
- BENTLEY, W. P. (VI) Special Agent, Treasury Dept., in regard to crude oil production.
- BIXBY, LLEWELLYN (I) Member, Dist. Personnel Comm. of Y. M. C. A. of Southern Calif. and Utah.
- BLACKIE, J. F., Group Chairman, United War Work Campaign, Milwaukee, Wis.; Director, Briggs Loading Co., mfg. and loading shells.
- BLATT, H. O. (II) Pres., The Live Wire Co., Ltd., Guelph, Ontario, mfg. high explosive and shrapnel shells for the Allies.
- BOGGS, W. B. (III) Asst. Supt., Copper Queen Branch, Phelps Dodge Corp., Douglas, Arizona, making copper.
- BROWN, S. E. (III) with Brown Reflectors Inc., Boston, Mass., developing and mfg. reflector adapted by Aircraft Bd. for flood lighting landing fields; Inst., School for Officers of the Signal Corps, M. I. T.
- BULL, H. W. (I) Asst. Inspector of Naval Ord., U. S. N.
- BURROWS, J. S. (III) Mgr., Distribution Div., U. S. Fuel Adm., procuring supply of smokeless coal for Navy, Shipping Bd., and other govt. depts.
- CARTY, F. J. (II) Mechanical Engr., Boston & Albany R. R., U. S. Railroad Adm.
- CARTY, M. W. (II) Mechanical Engr., Stone & Webster, Boston, Mass., designing gun shops for a govt. arsenal, Mass., and Picric Acid Plant for Govt., Mich.
- CHACE, F. M. (IV) Supt. of Cons., Dept. of Aeronautics, Feb. '17. Superintended cons. at March Field, Riverside, Calif.; transferred to Dept. of Aeronautics, Washington, D. C. See Military Record.
- COMSTOCK, D. F. (VIII) Engr. in charge and Vice-Pres., Kalmus, Comstock & Westcott, Inc., Boston, Mass., a naval experiment sub-station developing a device for the detection of hostile submarines. (Page 275.)
- COUPE, A. L. (III) Asst. Supt. of Cons. on Roads, Camp Taylor; Supt. of Cons., group of 29 warehouses, Q. M. Depot, Jeffersonville, Ind., and Asst. Supt. of cons. of sewers, Explosive Plant "C", Nitro, W. Va.
- CRANE, J. E. (V) Mgr., Cellulose Div., E. I. du Pont de Nemours & Co., Wilmington, Del.; supervising development of airplane dope, gas-protective clothing, eye-pieces for gas masks and smokeless powder containers for large guns; Member, Ex. Comm., Mayor's Comm. for National Defense, Newark, N. J. (Page 360.)
- CROWELL, W. R. (VIII) See Military Record.
- CUNNINGHAM, J. E. (I) with American International Shipbuilding Corp., Hog Island, Pa., during period of war. See Military Record.
- CURRIER, J. S. (XIII) Ord. Engr., Naval Torpedo Station, Newport, R. I., working on design and mfr. of torpedoes. (Page 279.)

REGISTER OF CIVILIAN RECORDS

- DAVIS, F. H. (I) Building Contractor, Detroit, Mich., cons. shop and furnaces at Whitehead & Wales, Detroit, Mich., producing fabricated ship work for Shipping Bd., and boiler shop for Brennan Boiler Co., Detroit, making boilers for Shipping Bd.
- DAVIS, H. R. (IV) (XIII) Draftsman with R. C. Sturgis, architect for housing at Bridgeport, Conn., for U. S. Housing Corp., and at Bath, Me., for U. S. Shipping Bd.
- DEWIS, C. S. (I) Mining Engr., with Dominion Govt. on hydrometric work.
- DIMOCK, R. E. (III) Chemist in charge of Metallurgist Laboratory, Jones & Laughlin Steel Co., Orangedale, N. S.
- DOLE, M. W. (II) Mechanical Engr. with Hq. Northeastern Dept., in connection with secret work done by Dept. Engr., Northeastern Dept.
- DOWNES, A. C. (V) Chemist and Asst. Supt., Fostoria Works, National Carbon Co., Inc., Fostoria, Ohio, mfrs. of battery electrodes for flashlight batteries.

1904

- EAGER, W. H. (VI) Vice-Pres., The Whitman & Barnes Mfg. Co., Akron, Ohio, mfrs. of ship yard tools, ordnance and munitions. (Page 366.)
- EASTERBROOKS, C. C. (II) Sales Engr., with Koitham & Pryor, Engrs., and Mgrs., New York Office, Buffalo Forge Co., designed and installed ventilating and dust removal systems in all shell loading plants, pumps, and fans for govt. powder plant, Nitro, W. Va. and engines and pumps for Emergency Fleet Corp.
- EMERSON, C. J. (XIII) Dean of School of Military Aeronautics, M. I. T., 1 Aug. '17. (Pages 4 and 14.)
- FARNHAM, F. S. (VI) Telephone Inst., New Hampshire College, U. S. Army Training Detachment.
- FARRELL, F. W. (V) Chief Chemist, Ideal Coated Paper Co., developing veneer tapes for airplane plywood.
- FAULKNER, ROBERT (III) Supt., Concentrator, Bethlehem Steel Co., Lebanon, Pa.
- FERGUSON, W. B. (XIII) Asst. to Gen. Mgr., U. S. Shipping Bd., Emergency Fleet Corp., 10 Aug. '17—20 May '18; Asst. to Pres., Amer. International Shipbuilding Corp., Hog Island, Pa. (Page 391.)
- FERRY, A. C. (VI) with Electric Dept., Bethlehem Shipbuilding Corp., operating Squantum Destroyer Plant, and in charge electrical transporting, and hoisting machinery.
- FINER, P. R. (II) assisted in drafting plans and producing steel for Watertown Arsenal Workshops, and "G. S." Building, Watertown, Mass., Fore River Wet Slip for Battleship Cons., Quincy, Mass. and fabricated ships for Submarine Boat Corporation of N. J.; with Fay, Spofford & Thorndike, Consulting Engrs., on cons. of Quartermaster Terminal Storehouse, South Boston, Mass.
- GALUSHA, D. L. (VI) Elec. Engr., Stone & Webster, Boston, Mass., working on designs of electrical portions of govt. projects.
- GILLETT, L. G. (III) Staff Asst., U. S. Shipping Bd., Emergency Fleet Corp.
- HAAR, SELBY (VI) Asst. Electrical Engr., Public Service Comm. for First Dist., State of N. Y.
- HARADEN, J. A. (VI) Engr., General Electric Co., Schenectady, N. Y.
- HAYDEN, RALPH (III) Supt., Stamp Mills, Quincy Mining Co., Hancock, Mich., in charge of concentration of copper rock.
- HAYNES, C. R. (X) Supt., Goodyear Metallic Rubber Shoe Co., Naugatuck, Conn., making hip rubber boots for A. E. F., and high all-rubber gaiters for the Navy, also rubber footwear for British, French, Belgian and Japanese Govts.
- HEPBURN, A. H. (IV) Architect for crane development at Bridgeport, Conn., for U. S. Housing Corp.
- HIGGINS, F. L. (XIII) Mgr., General Optical Co., Inc., mfg. diagnostic instruments for Medical Dept., and goggles for aviators; General Supt. and Mgr., Hawk-Eye Works, Eastman Kodak Co., Rochester, N. Y., mfg. airplane camera lenses, gun sights for airplane guns, trench periscopes. (Page 469.)
- HOLBROOK, E. A. (III) Inst., Aviation Ground School, Urbana, Ill., June—Sept. '17; Supervising Mining Engr., and Metallurgist, U. S. Bu. of Mines, Oct. '17; Acting Chief, Mining Engrs., U. S. Bu. of Mines, Washington, D. C., Dec. '18; Supt., Bu. of Mines, Experiment Station, Pittsburgh, Pa., 1 Aug. '19.
- HOLMES, A. F., (II) Inst., U. S. Dept. of Military Aeronautics, M. I. T.
- HOMANS, G. M. (III) in charge of administration of Food Control Bill for Calif. in respect to protection of necessities of war against fire, under State Food Adm. See Military Record.
- HOY, C. W. (X) Chairman, Red Cross, and Red Cross War Funds, Glassboro, N. J.
- INGRAM, R. O. (II) Asst. Agent, Ayer Mills, American Woolen Co., Lawrence, Mass., producing worsted fabrics for Army and Navy.
- JOHNSON, N. M. (I) Asst. Engr., Edgewood Arsenal, Md., in charge of govt. drafting room, Aug. '18—Apr. '19.
- KALMUS, H. T. (VIII) Pres., Kalmus, Comstock & Wescott, Inc., Boston, Mass., appointed a sub-naval station for technical research in regard to submarine detection; Pres., The Exolon Co., mfg. abrasives for govt. purposes. (Page 275.)
- KEEN, W. T. (II) Transmission Line Designer, Chile Exploration Co., designing transmission lines necessary for producing copper in Chile.

TECHNOLOGY'S WAR RECORD

- KEITH, LINDA FRASER (Mrs. G. H.), (IV) Red Cross Work, Boston, Mass.
- KING, CARL (II) Inst., Wentworth Institute, Boston, Mass., teaching 101st Engrs., and S. A. T. C., Class A and B, '18 and '19.
- LANG, CURRIER (I) Asst. General Mgr., Detroit Gear & Machine Co., handling work of Sec. and Treas., while he was in military service; Ex. in charge at factory mfg. clutches and transmissions for motor trucks for War Dept.
- LANGLEY, A. H. (I) gathered data for State of Conn. under Council of Defense. (Page 307.)
- LOUNSBURY, W. C. (VII) City Chairman, Y. M. C. A. drive, '17, Superior, Wis.; Ex. Comm., City Organization, Red Cross, '17; Ex. Comm., Second and Third War Drives; City Chairman, United War Work Campaigns.
- LOWRY, H. K. (VI) Signal Engr., Chicago Rock Is. & Pacific Railroad, Chicago, Ill.
- LYON, A. C. (XIII) Asst. Prof. of Civil Engr., University of Maine, teaching plane surveying, map reading and making to members of S. A. T. C., and practical navigation and seamanship to members of the Naval Unit.
- McCLUNG, S. A. (II) Asst. Fuel Adm., Pittsburgh; Dist. Adviser, Draft Bd., Pittsburgh, Pa.
- McCORMICK, KATHARINE DEXTER (Mrs. Stanley) (VII) Member of Woman's Comm. of the Council of National Defense, Washington, D. C.; Chairman of Food Production and Home Economics Dept., for national work in every state. (Page 308.)
- MAGNUSON, M. G. (III) Chief Inst., Airplane Dept., Aviation Mechanics Training School, St. Paul, Minn., giving instruction in rigging and placing an airplane in condition for flight.
- MERRILL, A. M. (XIII) Chargeman and Asst. Draftsman, Hull Div., Navy Yard, New York City, superintending draft room work in connection with fitting out transports, mine planters, destroyers, and battleships for foreign service. (Page 235.)
- MERRYWEATHER, HUBERT (III) Mining Engr., Bethlehem Steel Co., Bethlehem, Pa. Until Dec. '17, Vice-Pres. and General Mgr., Bethlehem Chile Iron Mines Co. in Chile; later in Raw Materials Dept., Bethlehem Steel Corp., assisting in developing raw material sources, particularly manganese and chrome.
- METCALF, E. H. (II) Aero Mechanical Engr., under the Signal Corps and Bu. of Aircraft Production, '17 and '18, engaged in production work on airplanes, principally the Handley Page.
- MILLER, A. O. (VI) Asst. Purchasing Agent, J. G. White & Co., New York City, purchasing airplane material and parts to make French machines.
- MONSARRAT, C. R. (II) Coal Mine Operator, Corning, Ohio.
- MUNSTER, A. W. (II) Member, Eastern Regional Purchasing Comm., U. S. Railroad Adm., New York City, acting in advisory capacity as to purchases of all railroads in Eastern Region.
- NEAL, C. A. (I) Vice-Pres., Union Bridge & Cons. Co., Kansas City, Mo., building fifteen wooden hulls for Emergency Fleet Corp.
- NICHOLS, A. W. (VI) Engr. in charge, Westinghouse, Church, Kerr & Co., Inc., New York City, contractors for cons. of mfg. plants required for the production of war materials; Dist. Mgr. of Southwestern Dist. with headquarters at Dallas, Texas, 1 Jan. '19.
- PALMER, G. P. (I) Div. Engr., U. S. Railroad Adm., in charge of physical property and cons. on the terminal division in Chicago, Ill.
- PIERCE, H. L. (I) Supervisor of Track at Cresson, Pa., for the Pennsylvania R.R., and after the railroads were taken over by Govt., kept track in condition for movement of coal traffic.
- PORTER, A. P. (I) Designer, Stone & Webster, Boston, Mass., working on crane girders and roof trusses for the new buildings at Watertown Arsenal, '17. Designer, Monks & Johnson, Philadelphia, Pa., on concrete buildings for the Navy Yard, Aug. '18.
- READ, A. M. (II) Asst. in office of Vice-Pres., U. S. Shipping Bd., Emergency Fleet Corp., at Washington, D. C., and Philadelphia, Pa.
- REED, R. C. (III) Inst. in Mining Engr. and Metallurgy, and Inst., S. A. T. C., M. I. T.
- RICE, R. G. (XIII) General Supt., F. W. Mark Cons. Co., Cleveland, Ohio, contractors on six area plant for National Malleable Castings Co., where the first cast steel anchor chain was produced for the Emergency Fleet Corp.
- RICHARDSON, H. K. (VIII) Cost and Statistical work with Chase Metal Works, Brass Mfrs., Waterbury, Conn.
- RIDDELL, G. C. (III) Chief of Metal Section, U. S. Tariff Comm. Metallurgical Adviser to the commission in charge of special experts investigating industrial effects of the war, and preparing information for use of Congress in handling of tariff problem.
- ROBERTS, A. O. (XIII) Supt., Worsted Dept., Amoskeag Mfg. Co., Manchester, N. H., producing shirting flannel for Army, and yarn for Red Cross.
- ROCKWOOD, E. F. (II) Engr. in Structural Div., Stone & Webster, Boston, Mass., in working on structural engineering at Watertown Arsenal, Rock Island Arsenal and on power plants and factories engaged in war work.
- ROLLINS, H. T. (II) Pres., Des Moines Hosiery Mills, Des Moines, Iowa; knit army socks.
- RUPF, E. L. (II) General Mgr., Bayonne Bolt & Nut Co., Bayonne, N. J.

REGISTER OF CIVILIAN RECORDS

- SAEGMÜLLER, F. B. (XIII) Supt., Precision Optical Div., Bausch & Lomb Optical Co., Rochester, N. Y., mfg. optics for range finders, gun sights, periscopes, aiming circles, battery comdr. telescopes and field glasses, etc., for Army and Navy. (Page 408.)
- SANBORN, G. W. (I) with Factory Mutual Fire Ins. Co., Boston, Mass., inspecting fire protection equipment in factories.
- SCOFIELD, E. C. (XIII) Inspector of Materials and Cons., Bu. of Cons. and Repair, U. S. Navy Dept.; assigned to special duties in Office of Superintending Constructor, Apr. '19.
- SCHWARTZ, LEON (IV) Adviser on recreation and community work and buildings, U. S. Housing Corp.
- SIMMONS, H. R. (II) Consulting Engr., in charge of mechanical equipment of mill running 100% on Govt. work, producing shirting, suitings, and blankets; much time spent in improvising equipment to meet needs brought on by labor conditions.
- SMITH, A. D. (V) Mgr., The Milliken Co., Arkansas City, Kan., producing, transporting, and refining petroleum and its products, furnishing considerable fuel oil to British Govt. and gasoline and burning oil to U. S. Govt. through associated refineries, operating under deputy sheriff guard for a considerable period.
- SNOW, N. L. (XIII) Vice-Pres., and General Mgr., The Terry Steam Turbine Co., Hartford, Conn., mfg. steam turbines for every U. S. torpedo boat destroyer and Ford Eagle Boat, under supervision of Navy Dept.
- SOSMAN, R. B. (VIII) Consulting Chemist, Nitrate Div., Ord. Dept.; also Physicist and, during last year of war, Acting Director, Geophysical Laboratory, in charge of the mfg. of optical glass for Army and Navy by War Industries Bd. (Page 347.)
- SPALDING, G. R. (V) Supt. of Filtration, Hackensack Water Co., New Milford, N. J., supplying water to Camp Merritt and to ships carrying overseas troops out of Hoboken, N. J.
- SPERRY, C. S. (I) Prof. of Engr. Mathematics, University of Colorado, organizing the teaching staff and teaching engineering students, and members of the S. A. T. C. in mathematics.
- STEVENS, H. W. (VI) Asst. Supt., Street Engr. Dept., The Edison Electric Illuminating Corp., Boston, Mass.
- STUTZ, W. F. (VI) Associate Physicist, Bu. of Standards, Dept. of Commerce, testing instruments and appliances for various divisions of the War Dept.
- SUTTON, DAVID (I) Structural Engr., approving plans and proposals for Commanding Officer of Arsenal in program of Stone & Webster, for Watertown Arsenal, Watertown, Mass., Nov. '17—May '18; Asst. Div. Engr. of Superstructure Div., Fay, Spofford & Thorndike, Boston, Mass., Constructing Engrs., Boston Army Supply Base, May '18—June '19.
- TAYLOR, R. E. L. (IV) Architect engaged in cons. of munition plants; in charge of architectural work of all four plants of the Bartlett-Hayward Co. of Baltimore, Md., plants for the Symington-Anderson Gun Co., in Rochester, N. Y., the Symington Forge Corp., and the Symington Chicago Corp. in Chicago, Ill.
- THURLOW, O. G. (I) Consulting Engr., Muscle Shoals Hydro-electric Project, and Chief Engr., Alabama Power Co., contractors for the Nitrate Div. (Page 376.)
- TODD, W. N. (VI) Engr., Portland Co., Portland, Me., cons. buildings and equipment for increased marine engine cons. and mfr. of 3" and 6" British howitzer shells.
- VOSBURY, W. DeW. (II) Consulting and Project Engr., U. S. Housing Corp., for housing development at Woodbury Bag Loading Plant, Perth Amboy, and Standard Metal Products Co.
- WALWORTH, G. R. (VI) testing steam turbines of the Navy at Lynn Works of General Electric Co.
- WENTWORTH, R. A. (II) Asst. General Supt., U. S. Cartridge Co., Lowell, Mass., mfrs. of small arms ammunition, 1 Apr. '18—15 Feb. '19; in charge of production, engineering, installation of equipment and cons.; investigated other plants for ammunition making; acted as liaison officer in connection with preparations of the Crown Cork & Seal Co. of Baltimore, Md., to make ammunition under our direction.
- WEYMOUTH, A. P. (I) Asst. Engr., Pennsylvania Lines West of Pittsburgh, U. S. Railroad Adm., Office of Chief Engr., Pittsburgh, Pa.
- WHITING, MARION SCHLESINGER (Mrs. Jasper) (V) Chairman and organizer of New England Branch, American Fund for French Wounded, '15-'18; Correspondent in Bu. of Communication, National Hq., American Red Cross, '19; Chairman, Boston Comm. for Fatherless Children of France.
- WHITMORE, WALTER (VI) Engr., New England Telephone & Telegraph Co., under govt. supervision, Boston, Mass., 1 Aug. '18—1 Aug. '19; Supervising General Engr. of work in Dept. of Engr. of outside plant.
- WILLARD, A. C. (X) Consulting Engr., Q. M. C. Attached to Cantonment Div., Office of Q. M. Gen., Washington, D. C., carrying on investigations both in Washington and at the University of Illinois on heating, cooking, and laundry equipment for the sixteen army cantonments. (Page 316.)
- WILLIAMS, C. B. (VI) Pres. and Treas., Williams Steel Wheel & Rim Co., Inc., Utica, N. Y.; Sec., Utica Chapter, Red Cross, May '18—Oct. '19.
- WILLIAMS, FRANCES ROPES (Mrs. Stillman) (IV) worked in connection with Red Cross and allied auxiliaries; Chairman, Winchester Special Aid Sewing Kits Comm; Capt., Winchester Girl Scout Troop.
- WILLIAMS, R. B. (III) Mining Engr., Metal & Thermit Corp., New York City, securing best raw materials for mfg. of thermit, semi-precious metals and ferro alloys, liquid chlorine, tin tetrachloride, thermit grenades and bombs.

TECHNOLOGY'S WAR RECORD

- WOOD, E. T. (II) Metallurgical Engr., La Belle Iron Works., Steubenville, Ohio, supervising production of shell steel, ship-plates and other steel products for war purposes; served on various comms. on shell steel, meeting with the Ord. Dept. to get production of satisfactory shell steel.
- 1905
- ABBOTT, A. H. (VI) Dist. Transmission Specialist, General Electric Co., Boston, Mass., on line extensions to furnish power to mfrs. of war material. See Military Record.
- ALLEN, CHESTER (I) Asst. Engr., Atlantic Loading Co., in charge of erection of buildings for plant and village for shell loading plant for Ord. Dept., at Amatol, N. J.; Asst. Production Engr., Foundation Co., expediting, ordering and delivery of materials for cons. and fitting of steel ships, for French Govt.
- AMMEN, W. W. (XIII) Machinist, American International Shipbuilding Corp., Hog Island, Pa., pipe fitting.
- ARMSTRONG, A. C. (III) Constructor, shipyard and houses, Portsmouth, N. H., and houses at Groton, Conn. for U. S. Shipping Bd.
- ATWOOD, C. E. (VI) Elect. Engr., Lockwood Greene & Co., Boston, Mass., in charge of electrical dept., designing and installing electric drives and lighting in factories mfg. cotton and rubber goods for war use; General Mgr., company furnishing light and water to American troops garrisoned at Santiago, Dominican Republic, West Indies.
- AYER, JOHN (I) Engr., Monks & Johnson, Boston, Mass., cons. of Victory Plant, Squantum; Ex. Engr., Fay, Spofford & Thorndike, Boston, Mass., on Boston Army Supply Base, South Boston.
- AYER, S. H. (VII) Bacteriologist, Dairy Div., Dept. of Agriculture, Washington, D. C.
- BAILEY, H. S. (V) Asst. Head, Fat and Oil Sect., Bu. of Chemistry, Washington, D. C., U. S. Food Adm., in charge of oil, fat and wax investigations, and allocation of glycerine to British, French and Italian Govts. (Page 312.)
- BARNES, J. P. (VI) General Mgr., Schenectady Railway Co., responsible for trolley service for plants of General Electric and American Locomotive Cos., and to Watervliet Arsenal; Member, General Comm., Schenectady County, Liberty Loan and War Charities Drives; Chairman, Sub-Comm., Outdoor Advertising; Asst. Chairman, and member, Ex. Comm., Schenectady Div., American Protective League, in charge of Bu. of Information; New York State Representative, American Electric Railway Assn., War Bd.; Chairman, Special Comm. in co-operation with Fuel Adm.; Chairman, Comm. on Military Operation, New York Electric R.R. Assn.
- BARTLETT, E. H. (X) Chief Draftsman, on plans for two experimental boats of a new type intended for use in the Navy; Tool Designer on tools intended for use in the production of a new type of motor truck for the Army.
- BARTLETT, G. M. (V) Chemist, Joseph Campbell Co., Camden, N. J., laboratory work and factory production, canned goods.
- BATTLES, D. R. (XIII) engaged in submarine construction, Electric Boat Co., Groton, Conn.
- BEDFORD, T. P. (VI) Electrical Engr., American Steel & Wire Co., Worcester, Mass., in charge mfr. of electric wires and cables for govt.; designed special wires and cables for submarine detecting devices, also signaling and retaining cables for captive balloons; in charge of govt. records of rubber, copper and lead used in mfg. electric wires and cables.
- BELL, R. E. (II) Civilian in Ord. Dept., fall of '17; Supervising Engr., C. E. Knoeppel & Co., organization work on U. S. Shipping Bd. See Military Record.
- BENDER, E. F. (II) New York Mgr., Kinney Manufacturing Co., Boston, Mass., mfg. oil pumps for U. S. Shipping Bd. and Navy, engr., equipping and testing fuel oil, lubricating and cargo oil pumps for battleships, cruisers, submarines, tankers and fuel oil stations of the Navy.
- BENNETT, F. G. (I) Topographical Engr., Layout of Camp Merritt, N. J., Aug. '17; Res. Engr., Hill & Ferguson, New York, on housing developments, Norfolk, Va., for U. S. Housing Corp. and for Cantonment Div., U. S. A.; Supervisor of cons., Public Utilities, Cradoek, Va.
- BENSON, S. W. (X) Field Engr., Tramway Dept., Trenton Works, American Steel & Wire Co., Trenton, N. J.; collaborated on design of seven aerial tramways for carrying cotton, Hopewell (Va.) Plant of E. I. du Pont de Nemours & Co.; in charge cons. of 16,000 ft. aerial tram for copper ore, Empire Copper Co., Mackay, Idaho, and of three large coal and slate-carrying trams in Va. and Tenn.
- BENT, W. G. (X) Asst. Supt., Eastman Kodak Co., Rochester, N. Y., mfg. photographic material for War and Navy Depts.; experimental work with photographic emulsion for special war uses, and development of a non-dimming celluloid eyepiece for gas masks. (Page 395.)
- BILL, E. G. (I) Statistician, Asst. Director, later Director, Military Service Branch, Dept. of Justice, Ottawa, Canada, administration of the Canadian Draft Law, 1 May '18—1 Oct. '19.
- BLAIR, P. A. (XIII) Technical Asst., Bu. of Ord., Navy Dept., Washington, D. C., Chairman, Army and Navy Patent Bd., 18 July '17—July '19.
- BLOUNT, F. M. (IV) Pres., Pensacola Shipbuilding Corp., Pensacola, Fla., constructing ships for Navy Dept.
- BOGGS, C. R. (V) Factory Mgr., Simplex Wire & Cable Co., Boston, Mass., mfg. insulated wires and cables.
- BOYDEN, CHARLES (V) (VIII) Asst. Liaison Officer, Office of Q. M. General, Washington, D. C., 25 Apr.—28 Aug. '18. See Military Record.

REGISTER OF CIVILIAN RECORDS

- BUFF, H. A. (III) Engr., Buff & Buff Manufacturing Co., Jamaica Plain, Mass., mfg. transits and levels for Govt.; gave information aiding production of sextants.
- BURDEN, F. E. (VI) Mgr., Uniform Button Plant, North Attleboro, Mass., mfg. buttons for Army and Navy.
- BUSHNELL, LEONARD (II) State Chairman, Domestic Fuel Emergency Comm., U. S. Fuel Adm., Seattle, Wash.
- CASTLEMAN, PHILIP (V) Deputy Health Commissioner, Boston, Mass., in charge of Bacterial Laboratory; Serologist, Northeast Div.; Inst., War Bacteriology, M. I. T.; Inst. in Serology at Simmons College preparing laboratory field workers; Inst. in Serology, Harvard Medical School.
- CLAPP, C. H. (III) Pres. and Prof. of Geology, Montana State School of Mines; Director, S. A. T. C., Montana State School of Mines; War Minerals Investigator; in charge, housing and care of U. S. troops on guard duty, Butte, Mont.
- CLARK, R. K. (II) Asst. Mgr., Geo. M. Clark & Co. Div., American Stove Co., Chicopee, Ill., mfg. stoves for rolling kitchens, food boilers for field ranges and trench shovels for Engr. Depot.
- CLARKE, W. A. (XIII) Asst. to Supervising Constructor, Electric Boat Co., Groton, Conn., estimating, planning and ordering materials for construction of submarines for U. S. and Allied Navies; Engr., Boston Navy Yard, in charge of reconstruction of damaged submarine for Great Britain.
- COFFIN, E. M. (X) Engr., fire protection equipment of shipyards of Emergency Fleet Corp., Dist. No. 1, Boston, Mass., '17-'18; Staff Engr., Regional Adviser's Office, War Industries Bd., Dist. No. 1.
- COLLINS, R. V. (I) Senior Asst. Engr., State of New York Dept. of Highways, Albany, supervising engr. work on the maintenance and repair of state highways.
- COOPER, E. B. (II) constructed factories, Detroit, Mich., for mfg. shells, trucks and Liberty Motor carburetors.
- COWDREY, I. H. (II) Inst., Naval Aviation Ground School, Airplane Inspection School (Navy); School of Military Aeronautics (Army), and S. A. T. C.; also engaged in making acceptance tests for various munitions. (Page 26.)
- CRONKHITE, L. W. (IV) Regional Priorities Adviser, War Industries Bd.; Special Agt., Dept. of Labor, and Sec., Mass. Bd. on Non-War Cons., Boston, Mass.
- CROSBY, GORHAM (VIII) Member, Local Legal Advisory Bd., Glen Ridge, N. J.
- DANIELS, JOSEPH (III) Technical Adviser, Fuel Controller, State of Washington; Investigator, Planning Div., U. S. Shipping Bd.; Geologist, Geological Survey, State of Washington; Chairman, Military Survey Bd., State Council of Defense, engaged in making a military survey of the State for the Western Dept., U. S. A., '18; Inst., University of Washington, with rank of lieutenant, '17 and '18.
- DARLING, P. G. (II) Engr., Mechanical Experimental Div., Engr. Dept., E. I. du Pont de Nemours & Co., Wilmington, Del. and Hopewell, Va.; studied shell filling in England as a du Pont member of the American Mission on Munitions of War, '17.
- DAVIS, G. H., with Fay, Spofford & Thorndike on Boston Army Supply Base.
- DAVIS, ROSWELL (XIII) Head of Airplanes Dept., U. S. School of Military Aeronautics, Princeton University, assisted in organization of school, and organized and directed Airplanes Dept., July '17-Dec. '18. Directed Airplanes Course at the Special Ground School for Officers, Bolling Field, Washington, Oct. '18.
- DEAN, A. M. (II) Vice-Pres. and Chief Engr., Templar Motors Corp., Lakewood, Ohio, machining 155 mm. H. E. shells for Ord. Dept.
- DEAN, H. L. (XIII) Mgr., Compressor and Engine Div., Chicago Pneumatic Tool Co., supplied machinery for govt. purposes.
- DRAKE, F. E. (II) Mgr., Gas Dept., Lynn Gas & Electric Co., supplying public and war industries with gas and electricity.
- DOUGLAS, J. F. H. (VI) Inst., Wireless Telegraphy, Texas Agricultural and Mechanical School for Signal Corps Radio Electricians, College Station, Texas.
- DWYER, EMMET (II) Vice-Pres. and Factory Mgr., The Michigan Stove Co., Detroit, mfg. hotel ranges and hot air heating furnaces used in cantonments in U. S., and 6" trench mortar shells; Member, Technical Comm., 6" Trench Mortar Shell Assn.
- EMERSON, C. A., JR. (XI) Chief Engr., State Dept. of Health, Harrisburg, Pa., supervised water supply and sewerage for munition plants for the War Dept., and for three shipyards and forty-five canneries for Navy Dept.; volunteered for military service, not accepted as regular work was more important.
- FAY, R. B. (II) Sec., Perry-Fay Co., Elyria, Ohio, producing screw machine parts for the Liberty Motors, auto trucks, tractors, tanks and shells.
- FIELD, CHARLES, 3d (V) Factory Mgr., Pure Carbon Co., Wellsville, N. Y., output used by the Emergency Fleet Corp., Navy and Signal Corps in France.
- FOUHY, J. F. (I) Resident Engr., U. S. Shipping Bd., Emergency Fleet Corp., Staten Island, Standard and Downey Shipyards, Staten Island, N. Y., supervising cons. of shipyard plants, including the machinery; rated for commission in C. E. C., U. S. N. R. F., not called into service.
- GECKLER, B. E. (V) Architect, Atlas Powder Co., Wilmington, Del., designing T. N. T. plants; Architect, Planning Dept., Bethlehem Steel Corp., Halan Longworth Plant, Wilmington, worked on plans of oil and cargo-carrying steel boats.

TECHNOLOGY'S WAR RECORD

- GIFFORD, R. S. (V) Chemical Engr., E. I. du Pont de Nemours & Co., Wilmington, Del., worked on chemical problems in mfr. of smokeless and black powder.
- GILBERT, A. C. (V) Chemist in charge of Depts., Chas. Pfizer & Co., Inc., Brooklyn, N. Y., furnished drugs and chemicals for the Medical Supply Dept., U. S. A.
- GOULLOCK, W. S. (III) mfg. farm machinery at Warsaw, N. Y.; helped organize local Home Defense Unit.
- GRAHAM, E. S. (III) Chairman, Young County (Tex.) Chapter, Red Cross, and Young County War Savings Division.
- GREEN, WILLIAM (VI) Technical Adviser, Bu. of Mines, C. W. S., on development and mfr. of poison gas. (Pages 254 and 258.)
- HARDING, R. M. (I) volunteered for 2d Off. Tr. Camp, Engrs., refused for physical defects; Mgr., The Columbus Power Co., Columbus R.R. Co. and Gas Light Co. of Columbus, Ga.; Member, Home Guard, on duty during strikes.
- HARDY, H. L. (I) Corp., Co. F, Newton Constabulary, '16; Corp., Co. C, Mass. State Guard, Sept. '19. Riot duty during Boston Police Strike.
- HARRINGTON, W. F. (X) Asst. Mgr., '15, Mgr., '17, Carney's Point Smokeless Powder Plant, E. I. du Pont de Nemours & Co., mfg. smokeless powder. (Page 358.)
- HAWKES, C. W. (II) Sgt., Co. D, Newton Constabulary, '16; Sgt., Co. D, Mass. State Guard, Sept. '19. Riot duty during Boston Police Strike.
- HICKOK, H. M. (I) Engr. and Contractor, designed and built grain elevators in Minn., N. and S. Dakota, Mont., Wis. and Idaho.
- HILL, E. L. (II) Asst. General Mgr., Erie R. R., New York City, told to remain at his post on account of large troop movements over Erie Lines; Sec. and Ex. Officer, Port and Harbor Facilities Comm., U. S. Shipping Bd., Washington, D. C., emergency construction of floating drydocks and ship repair shops, also improving the railroad and marine terminals for loading and dispatching vessels June '18. See Military Record and page 333.
- HOUSKEEPER, W. G. (II) Engr. of Methods, Western Electric Co., New York, developing machinery and methods for mfr. of receiving and transmitting vacuum tubes VT-1 and VT-2 for wireless telephone communication to airplanes, for Signal Corps, U. S. A.
- HOWLAND, A. H. (IV) Technical Asst., U. S. Shipping Bd., Emergency Fleet Corp., Leetsdale, Pa., supervision, cons., operation and administration of ship steel fabrication plant, July '18; in charge cons., plant operation and storage of steel, 1 Apr.—1 Sept. '19.
- HUMPHREY, C. T. (I) Prof. Civil Engineering, Villanova College, Villanova, Pa., Inst., S. A. T. C. Unit.
- HYDE, S. T. (X) Structural Draftsman, Public Works Dept., Navy Yd., Puget Sound, engineering and design of public works; Yard Photographer, photographing camouflaged ships, and employees in the Yard.
- INGALLS, R. P. (VI) Traveling Salesman and later Sales Mgr., Simplex Electric Co., Boston, Mass., selling electric devices to Navy Yards, cantonments, shipbuilders and munition mfrs. in New England.
- JOHNSON, B. L. (III) Assoc. Geologist, U. S. Geological Survey, Alaska and Washington, D. C., examining gold and copper deposits in southwestern Alaska, reserves of war metals in foreign countries, and preparation of maps showing metal reserves for Peace Conference.
- JOHNSTON, C. W. (III) Mgr., Virginia Smelting Co., and Virginia Industrial Chemical Co., West Norfolk, Va., making copper from pyrites cinder and converting cinder into iron ore; mfr. of liquid sulphur dioxide.
- KEEN, W. H. (V) Metallurgist, Washington Steel & Ordnance Co., Washington, D. C., mfg. armor-piercing projectiles, high explosive shell and shrapnel for Army and Navy and for the Allies, '14; Mgr., Chemical Products Co., mfg. tungsten powder, Sept. '17; Factory Mgr., U. S. Copper Products Corp., Cleveland, Ohio, mfg. copper and brass tubing.
- KENDALL, H. C. (VI) Engr., Div. of Passenger Transportation and Housing, Emergency Fleet Corp., Portland-Ore., making investigations and recommendations for adequately transporting or housing shipyard workers and directing cons. work and operation of passenger transportation facilities in Dist. No. 10.
- KENWAY, H. W. (II) Mgr., Experimental Dept., United Shoe Machinery Corp., Beverly, Mass., supervising design and special machinery for mfg. heavy army shoes, military and naval equipment, gas masks, and two airplane cannon. (Page 279.)
- KILLION, L. J. (I) Asst. Chief Engr., in charge of Philadelphia office, Monks & Johnson, Architects and Engrs., layout, design and supervision of construction of munition and shipbuilding plants.
- KLAHR, C. D. (II) Farmer, Clarion, Pa., producing beef, pork, mutton and wool; Member, Local Ex. Comm. Red Cross.
- KRIEGSMAN, E. F. (I) Asst. Engr., Office of City Engr., Bd. of Public Works, San Francisco, Calif., consulting on transportation and supply problems in connection with local Coast Defense; Engr., Pacific Coast Steel Co., Tower Dept., Sept. '17, assisted in design, cons. and operation of plant for mfg. light structural steel products; Industrial Engr., Miner Chipman and Staff, May '18, assisted on "Report on Hours and Wages of 20,000 Shipyard Workers in San Francisco Bay Region, for the California Metal Trades Association, by Miner Chipman and Staff." In charge of investigations of the organization of the Standard Gas Engine Co., July '18.

REGISTER OF CIVILIAN RECORDS

- LACKMAN, H. W. (II) 1st Sgt., Cincinnati Home Guard. Pvt.; Corp.; Sgt.; 1st Sgt. Co. 30 did flood-relief and guard duty during the high water, and police and fireman duty during the strike of the police and firemen; Chairman, Team 8 of the Hamilton County Liberty Loan Army.
- LAWRENCE, A. W. (V) Mgr., Footwear Div., Comm. on Supplies, Washington, D. C., making out specifications, purchasing, responsibility of mfr., inspection and delivery of shoes, leather, and rubber goods for Army, Sept. '17; Mgr., Shoes, Leather and Rubber Goods Div., War Industries Bd., purchasing shoes, leather, and rubber goods for U. S. forces, except Army, Oct. '17; Chief, Procurement Sect. of Shoes, Leather and Rubber Goods Branch, Office of Q. M. General, June '18. Did not accept Lt.-Col. commission offered in Q. M. C. See Military Record and page 310.
- LEMNER, CECILIA A. (VII) 2d Lt., Mass. State Guard. Nursing Asst., Mass. State Dept. Health; during epidemic organized nursing forces in several towns in Eastern Health Dist. and as Asst. to Dist. Health Officer acted as agent between local Boards of Health and State Dept. of Health; special service, Red Cross.
- LEWIS, W. K. (X) Consulting Engr., Bu. of Mines, Interior Dept.; C. W. S., War Dept., July '18; Conference in Paris, Oct. '18. (Page 257.)
- LINDSLEY, B. E. (III) Supt. of Cons. and Operation, Gasolene Plant, Lorch Refining Co., Ardmore, Okla.
- LOOMIS, W. W. (VI) General Purchasing Agent, Stone & Webster, Boston, Mass.
- LORD, R. H. W. (X) Tanner, Ireson Tanning Co., Gorham, Me., tanning leather for worsted mills doing govt. work.
- LOVEJOY, R. F. (IX) Active Mgr. and Head, D. Lovejoy & Son, Lowell, Mass., mfg. machine knives for shipyards from Maine to Texas, lumber mills, cartridge plants, and for ships of Emergency Fleet Corp.
- LUCE, R. F. (I) Hydrographic and Geodetic Engr. (Commissioned). Chief, Section of Tides and Currents, U. S. Coast and Geodetic Survey, Washington, D. C., preparing tidal and related publications. See Military Record.
- LYNDE, H. M. (I) Senior Drainage Engr., U. S. Dept. of Agriculture, Raleigh, N. C.
- MacBRIAR, W. N. (II) Member, Power Plant Economy Comm., Fuel Adm., State of Washington; Chief Engr., Carnation Milk Products Co., Seattle, Wash.
- McLEAN, R. W. (II) Supt., Carver Cotton Gin Co., East Bridgewater, Mass., building cottonseed oil mill machinery used to produce short staple lint from which explosives are made, cottonseed cake for cattle, and cottonseed oil. See Military Record.
- MACINTIRE, H. J. (II) Special Inst. for Shipping Bd., preparing engineers for examination for license to operate on ships of the Merchant Marine; Assoc. Prof. of Mechanical Engineering, and Inst. in Ensign Course given for Govt. by University of Washington; Refrigerating Ener., Refrigerating Sect., Cons. Div., War Dept., Washington, D. C., from Sept. '18—15 July '19, in charge all refrigeration for War Dept. in France and U. S.
- MADDOCK, ELIZABETH MIDDLETON (Mrs. C. S., Jr.) (VII) organized a community kitchen; Chairman, Women's Comm. of Mercer County and of Trenton, N. J., for the Second Liberty Loan; Worker, Red Cross; Pres., Trenton Contemporary Club, arranged lectures to raise funds for war work.
- MERRILL, ALDEN (V) Chief Chemist, American Brass Co., Waterbury, Conn., working on technical control of mfr. and testing of raw materials and finished product, brass and similar alloys for discs from which shells were drawn, admiralty alloy, condenser tubes, Tobin bronze, copper sheet, wire and tubes, and cupro-nickel for bullet jackets.
- MERRILL, J. L. (V) Chemist, Bu. of Plant Industry, U. S. Dept. of Agriculture; investigated the use of domestic flax straw in place of German linen rags for the mfr. of U. S. currency paper.
- MERRILL, O. C. (I) Chief Engr., U. S. Forest Service, Washington, D. C., promoting development of water power for the purpose of conserving fuel supplies and of reducing production cost, drafting necessary legislation and securing its approval by the Administration and Congress.
- MOODY, E. F. (V) Chairman, Membership Comm., Red Cross, Portland, Me.
- MOTTER, W. D. B., JR. (III) Mgr., Benson Mines Co., producing iron ore concentrates.
- NABSTEDT, H. M. (I) Designing and Structural Engr., Ambursen Construction Co., Inc., New York City, working on design and cons. of reinforced concrete lighters.
- NELSON, W. A. (XIII) Naval Architect, Pensacola Shipbuilding Co., Pensacola, Fla., in charge of design of hull and machinery, 9,000-ton steel cargo ships for U. S. Shipping Bd., Emergency Fleet Corp.
- NESMITH, R. H. (XIII) Engr., New Brunswick (N. J.) Plant, Wright-Martin Aircraft Corp., working on production and machine shop layout.
- ORTSEIFEN, A. J. (XIII) Cost Engr., Cons. Div., Q. M. C., supervising cons., Manchester Munition Plant, St. Louis, Mo., 11 Sept. '18. See Military Record.
- PAINE, P. M. (XII) Asst. to Vice-Pres., Gypsy Oil Co., Tulsa, Okla., in charge of operating departments for production and transportation of crude oil and gasolene in mid-continent oil fields.
- PAQUET, V. H. (XIII) Engine Designer, and Chargeman, Seattle Cons. and Dry Dock Co., and Ames Shipbuilding and Dry Dock Co., Seattle, Wash., and Chief Draftsman, Northwest Steel Co., Portland, Ore.; in charge of engine design and Chief Draftsman on cargo steamers, and on design of machinery of Bath Iron Works destroyers, especially the propellers. See Military Record.
- PARKER, L. H. (I) with American International Shipbuilding Corp., Hog Island, Pa. (Page 391.)

TECHNOLOGY'S WAR RECORD

- PARSONS, G. F. (VI) Visiting Engr., Mass. Fuel Adm., Boston, Mass., aiding conservation of coal by elimination of losses, and efficient plant operation.
- PAYNE, F. E. (XIII) Pres., Crane Packing Co., Chicago, Ill.; supplied "John Crane" flexible metallic packing for submarine service, air valves, and air compressors at submarine bases and navy yards; supplied Emergency Fleet Corporation's requirements from every port in the U. S.
- PICKERSGILL, W. C. (I) Engr., Shipyard Plants Div., U. S. Shipping Bd., Emergency Fleet Corp., Houston, Tex., design and cons. details of shipyard plants, 24 May '18; District Plant Engr., in charge of all cons. of shipyards in Gulf Dist., from the Mississippi to the Rio Grande, 15 May '19.
- PRENTISS, G. W. (II) Pres., George W. Prentiss & Co., Holyoke, Mass., mfg. wire for textile mills, and standing and field telephone cables for Govt.
- PRESCOTT, A. G. (II) Mgr., A. W. Banister Co., South Boston, Mass., equipping and maintaining blower and exhaust systems in factories doing war work.
- RICHARD, C. R. (II) Assoc. Member, Legal Advisory Bd., Beverly, Mass.; Engr. Salem Gas & Electric Co., Salem, Mass. and of Citizens' Gas & Electric Co., Nantucket, Mass.; engr. work for Gloucester Electric Co., providing power to shell mfrs.
- RADFORD, G. S. (XIII) Mgr., Contract Div., U. S. Shipping Bd., Emergency Fleet Corp., San Francisco, Calif., negotiating on contracts for ships, Sept. '17—Feb. '18.
- RALPH, P. J. (XIII) Technical Aide, Branch, later Section, Head, Cons. Div., U. S. Shipping Board, Emergency Fleet Corp., Washington and Philadelphia, securing material and supervising equipment of merchant vessels with "other gear" for protection against moored mines, Mich.—Dec. '18.
- RHODES, G. I. (VI) Mgr., Engr. Dept., Ford, Bacon & Davis, New York City, developing low temperature distillation of coal for production of toluol; worked on design of large Scotch boiler mfg. plant at Richmond, Va., and consulted on Smokeless Powder Plant, Nitro, W. Va.
- RICHARDS, N. A. (IV) Vice-Pres., Purdy & Henderson Co., New York City, in charge of building Camp Las Casas, San Juan, Porto Rico, Feb.—Aug. '18; Engr. work for Govt.
- RICHMOND, W. S. (I) applied for commission in Engrs., Feb. '17; Capt., Engr. R. C., June; transferred to civil employment at request of Col. Warren, Engrs.; Asst. Engr., War Dept., in charge of special investigation of water power situation at Niagara Falls and of all diversions of Great Lakes waters, Sept. '17 to date (Aug. '19).
- RILEY, F. B. (II) Production Engr., Ord. Dept., in charge of production, Phillipsdale Loading Plant, Phillipsdale, R. I.; operated a new process in explosive work, the stamping of powdered T.N.T. into solid sticks by automatic machinery, in mfr. of boosters for Stokes trench mortar shells; Asst. to District Chief of Ord., Boston, Mass., 15 June '18. (Page 325.)
- RINEARSON, W. C. (II) Sec.—Treas., Solomon Contracting & Engr. Co., Nashville, Tenn., in charge of equipment and teams on cons. of Old Hickory Powder Plant, Nashville, Tenn.
- RIPLEY, E. H. WHEELER (Mrs. E. P.) (V) Worker, American Fund for French Wounded, and Smith College Relief Unit; Chairman for Weston (Mass.) War Savings Stamps Drive, June '18.
- RUSSELL, A. E. (XIII) Charge Draftsman, Machinery Div., Navy Yard, Boston, drafting work on transports, mine layers, etc.
- RYAN, IDA A. (IV) Draftsman, Railway-Seacoast-Carriage Sect., Artillery Div., Ord. Dept., War Dept., Washington, D. C., 29 Apr. '18, working on designs of railway gun mounds.
- AVILLE, CHARLES (XI) (VII) Consulting Sanitarian, Dallas and Fort Worth Camps; Sec., Public Health Dept., Texas State Council of Defense; Ex. Sec., Dallas County Council of Defense; Sec., Dallas Four Minute Men; Ex. Sec., Fourth Liberty Loan Comm.; Vice-Chairman, Texas Public Health Commission; Member, American Protective League.
- SCHMEISSER, E. G. (VI) R. O. T. C., Johns Hopkins University, Baltimore, Md.; Sec. and Treas., Baltimore Oil Engine Co., cons. and experimental work on Wygodsky self-starting type, submarine oil engines.
- SCHONTHAL, D. C. (II) Member of Sub-Comm., Scrap Iron and Steel, American Iron and Steel Institute under War Industries Bd.
- SHAW, THOMAS (VI) Engr., Dept. Development and Research, American Telephone & Telegraph Co., New York City, designing loading and other coils used in long distance telephone and telegraph transmission circuits devoted considerable time to priority work, insuring keeping open circuits of particular importance to the Govt. and war industries.
- SHERMAN, H. N. (formerly Schnurmann) (III) Supply and Production Officer, Dept. of Aircraft Production, Ministry of Munitions, London, Eng., responsible for output of complete airplanes built by contractors for Air Services; Liaison Officer between Ministry and contractors.
- SIMONDS, F. W. (I) City Engr., Rahway, N. J., keeping roads in shape for heavy traffic of gov't. trucks en route from New York to Camp Dix and to Colonial Base Hospital No. 3.
- SMITH, A. H. (XIII) Production Engr., Sefton Manufacturing Corp., mfg. paper products, particularly corrugated shipping cases for packing food products.
- SMITH, E. C. (V) Chemical Engr., Research Laboratory, National Carbon Co., Inc., Fremont, Ohio, under direction of Bu. of Mines, developing "smoke boxes" to make smoke screens to hide ships from submarines.

REGISTER OF CIVILIAN RECORDS

- SMITH, E. L. (VI) Asst. Mechanical Engr., Federal Rubber Co., Cudahy, Wis., providing equipment for the gas mask and other mechanical rubber goods depts.
- SMITH, HUNTINGTON (I) Div. Engr., New York, Chicago & St. Louis, R.R., U. S. Railroad Adm., maintenance of way.
- SMITH, P. M. (X) Civilian Aide to American Naval Attaché, Madrid, Spain, Jan.—June '18; Special Asst., Dept. of State, and Asst. to the Representative, later Representative of the War Trade Bd. at Barcelona, Spain, June '18—Mch. '19.
- SPALDING, W. L. (III) Chemical Engr., National Aniline & Chemical Co., Buffalo, N. Y., mfg. dyestuffs, designing of plant for mfr. of mustard gas, also experimental work.
- STEVENSON, H. J. (II) Corp., Co. C, 9th Tr. Regt., Plattsburg, Aug. '16; Engr., in charge Engineering Dept., The Foxboro Co., Foxboro, Mass., design and mfr. of dial type recording pressure gauges, thermometers and airplane air speed meters; Member, Local Advisory Bd. for Selective Draft; Secret Service work.
- TAYLOR, J. W. (II) Mechanical Engr., Frankford Arsenal, Philadelphia, Pa., in charge of experimental and development work of artillery ammunition; invented and developed an incendiary bullet, a supersensitive balloon fuse, a bore safe fuse for high-explosive shell, an auto-selective delay action fuse for armor piercing projectiles, and a ballistic parachute for special and star shell.
- TAYLOR, W. A. (I) Telephone Engr., Engr. Dept., American Telephone & Telegraph Co., New York (Bell System) controlled and operated by Govt., cons. and maintenance of telephone lines.
- THOMAS, G. C. (II) Supt., Russian Works, Singer Manufacturing Co., Podolsk, South of Moscow, until Aug. '17; designed and arranged sets of gauges to standardize the mfr. of shells, fuses, and other munitions; mfg. beds, pajamas, shovels, gas masks, lathes, and drilling machines, tools, and munitions for Russian Army. (Page 368.)
- THOMPSON, L. A. (VI) Asst Supt., Eastside Factory, W. H. McElwain Co., Manchester, N. H., mfg. army and civilian shoes for Russia, and U. S. Army and Navy.
- TOMPSON, MILDRED WHEELER (Mrs. H. F.) (VIII) Chairman, Local Comm. for Canning, etc., Arlington, Mass.; Member, State Comm. of Food Conservation.
- TUFTS, WILLIAM (I) Supt., Cotton Goods Mill, Nashua Mfg. Co., Nashua, N. H., mfg. cloth for uniforms, blankets, cartridges, and Red Cross.
- WALDO, GRETCHEN HOWES (Mrs. C. S., Jr.) (VII) war farmer and food conserver.
- WALES, F. C. (I) Mgr., Planning Div., and Member, Ex. Comm., Gas Defense Plant, C. W. S., War Dept., Long Island City, N. Y., mfg. gas masks.
- WASHBURN, E. W. (V) Vice and Acting Chairman, Div. of Chemistry and Chemical Technology, Department of Science and Research, Council of National Defense; Delegate, International Chemical Union and International Research Council, London and Brussels, '19.
- WEBSTER, F. DeW. (II) Supervisor of Direct Material, Ord. Dept., Standard Steel Car Co., Hammond, Ind. increasing production of 240 mm. howitzer gun mounts.
- WELLS, A. W. (III) Engr., American Optical Co., mfg. aviation and protection goggles for Govt., also trial sets and ophthalmic lenses for optical unit in France.
- WENTWORTH, H. A. (VIII) Vice-Pres. American Zinc, Lead & Smelting Co., Boston, Mass., producing zinc for cartridge cases and various war purposes, lead and sulphuric acid; in charge of exploration work for company.
- WHITCOMB, R. N. (I) Engr. Mgr., The White Engineering Corp., New York City, Supt. of engr. work on U. S. Nitrate Plant No. 1, Sheffield, Ala., Electrical station, U. S. Nitrate Plant No. 2, Muscle Shoals, Ala.; Langley Field Sig. C. Hq. Experimental Stations, Hampton, Va., Carlstrom and Dorr flying fields near Arcadia, Fla., Concentration and Supply Depot for Sig. C., Hampton Roads; purchasing aircraft for Sig. C.
- WHITE, R. H. (VIII) Technical Director, Abrasive Plants, Norton Co., Niagara Falls, N. Y., doing research work at request of Govt. Depts.
- WHITEHOUSE, M. H. (IV) Architect, Willamette Iron & Steel Works, Portland, Ore., building warehouses and mess hall, and making ship-joiner drawings for wooden ships for U. S. Shipping Bd.; Draftsman, Airplane Production Div., Signal Corps, Vancouver, Wash., making drawings for dry-kiln cut-up-plant; applied for Overseas Service with Camouflage Div., Engrs., armistice signed before commission was granted.
- WHITMORE, J. B. (II) Equipment Development Engr., Westinghouse Lamp Co., Bloomfield, N. J., mfg. equipment for mfr. of high speed signal and aero search lights for Army and Navy; in charge of the experimental Lamp Div., mfg. special types of lamps for the Govt.
- WIGGINS, E. W. (V) Asst. Mgr., Hopewell Works, E. I. du Pont de Nemours & Co., City Point, Va., '15; built a gun cotton plant with equipment and facilities for making everything pertaining to the mfr. of nitro cellulose, including nitric and sulphuric acids, cotton purification, water filtration, alum and caustic mfr., acid recoveries, etc.; Supt., later Mgr., Arlington Works, Arlington, N. J., '18. (Page 357.)
- WILCOX, H. M. (X) Industrial Engr., Head of Industrial Engineering Dept., Winchester Repeating Arms Co., New Haven, Conn., mfg. Browning machine rifles, Winchester bayonets, cartridge cases, etc., for U. S. and the Allies.

TECHNOLOGY'S WAR RECORD

- WINSHIP, L. C. (VI) Elec. Supt., Boston & Maine R.R., North Adams, Mass., in charge of maintenance and operation of electrical equipment, Hoosac Tunnel Electrified Zone.
- WISE, R. E. (I) Designing Engr., building dams for conservation of water for power, Conn. River Reservation Co., Turners Falls, Mass.
- WYMAN, A. P. (IV) Dist. Town Planner, U. S. Housing Corp., Washington, D. C., 1 Aug. '18—1 Apr. '19, preparing town sites; Town Planning Editor of Report, publishing architectural, town planning and engr. plans.
- 1906
- ABBOTT, W. G., JR. (VI) Asst. Chief, Mechanical Research and Development Sect., American University Experiment Station, C. W. S., handling important design work for Chemical Sections, co-operating with them in use of toxic materials, explosives and pyrotechnics, 23 July '18—11 Jan. '19. Recommended for captain's commission, Nov. '18.
- ADAMS, A. K. (III) Mining Engr. and Geologist, Andes Copper Co., Chile. See Military Record.
- ADAMS, DAN (II) Head, Dept. of Steam Engr., Lockwood, Greene & Co., Boston, Mass., designing power plants, heating, ventilating and fire protection systems for new munition plants and industrial plants.
- ADAMS, H. P., Mgr. and Part Owner, Acme Welding Co., and Westgate Co., Fall River, Mass., making textile machinery repairs, special steel forgings and doing acetylene welding and cutting.
- AHERN, M. J. (XII) Pres., Canisius College, Buffalo, N. Y.; Inst., S. A. T. C., Boston College, Chestnut Hill, Mass.
- ANDERSON, J. W. (II) Engr., Electric Boat Co., Groton, Conn.
- ANSON, C. L. (XIII) Asst. Inspector, Naval Construction, Boston and Adjacent Navy Yards, U. S. Navy Dept., superintending alteration and repair of German ships.
- BALL, H. J. (II) Member, Lowell Fuel Comm. and Lowell Public Safety Comm.
- BARBER, R. J. (III) Industrial Engr., Div. of Steel Ship Cons., U. S. Shipping Bd., Emergency Fleet Corp.
- BARDWELL, E. S. (III) Supt., Ferro-Alloy Dept., Anaconda Mining Co., Great Falls, Mont., producing copper and ferro-manganese for Allies and U. S. Govt.
- BARTLETT, E. B. (VI) Sec. and Treas., Milwaukee Stamping Co., handling sub-contracts on munitions.
- BARTLETT, TERRELL (I) applied for active service, but refused on physical grounds.
- BEARCE, W. P. (I) Conduit Inspector, Div. Foreman, General Foreman on conduit construction and Progress Engr. on ship construction, American International Shipbldg. Corp., Hog Island, Pa. (Page 391.)
- BEERS, H. W. (I) Vice-Pres. and General Mgr., Southern Ferro Concrete Co., Atlanta, Ga., supervising building of Camp Gordon, Ga. See Military Record. (Page 318.)
- BELL, A. L. (XIII) Asst. General Purchasing Agent, U. S. Shipping Bd., Emergency Fleet Corp., Washington, D. C., 16 May '17—1 June '18; Philadelphia, Pa., 1 June—15 Dec. '18.
- BENT, L. N. (X) in charge, Hercules Powder Co. Plant, San Diego, Calif., mfg. chemicals, potash, acetone, acetic anhydride, ethyl acetate, iodine and airplane dope from kelp for U. S., and British Govts., '17; Mgr., U. S. Govt. Explosive Plant, Nitro, W. Va., mfg. smokeless powder, '18. (Page 363.)
- *BENTLEY, F. H. (II) Supt. of Cons., Camp Stuart, Newport News, Va., 1 June—15 Sept. '18; Camp Mills, Garden City, N. Y., 30 Sept. to time of his death, 12 Oct. '18.
- BLACKWELL, O. B. (VI) Transmission Engr., American Telephone & Telegraph Co., New York City.
- BREITZKE, C. F. (XI) Sn. Engr. and Acting Sn. Adviser, Water Dept., City of Jersey City, responsible for quality of water supply involving health of 40,000 war workers at Jersey City and adjoining towns, and drinking water on trunk line railroads bringing troops to the Port of Hoboken, N. J.
- BROWN, H. W. (II) Asst. General Supt., American Agricultural Chemical Co., Michigan Carbon Works, Detroit, Mich., mfg. fertilizers, gelatine, bone black, bone ash, and by-products.
- BROWNE, F. A. (XIII) Mechanical Engr., Shipping Bd., 10 Apr. '17; Mechanical Engr., Emergency Fleet Corp., 15 Apr.—1 May; General Purchasing Officer of Machinery, 1 May—1 June; Asst. General Purchasing Officer, 1 June—8 Sept.; General Purchasing Officer, 8 Sept. '17—20 July '18; Mgr. of Purchase and Production, 20 July—1 Nov. '18.
- BUCKINGHAM, G. H. (IV) Architectural Draftsman, Treasury Dept., Washington, D. C., drafting on marine hospitals and quarantine stations, at Baltimore, Boston and New Orleans.
- BURPEE, G. W. (I) Asst. to General Supt., Westinghouse, Church, Kerr & Co., on construction of Port of Embarkation, Newport News, Va., Aug.—Nov. '17; Resident Engr. for Westinghouse, Church, Kerr & Co. on cons. of U. S. Nitrate Plant, No. 2, Muscle Shoals, Ala., Dec. '17—July '19.
- CARTER, C. E. (I) in charge of design and const. of utilities, U. S. Housing Corp., Bath, Maine.
- CAYPLESS, W. S. (III) Chief Chemist, Federal Lead Co., Flat River, Mo., working on analytical and assay determination and ore testing.
- CHANDLER, EDWARD (XIII) Supt., The U. S. Aluminium Co., New Kensington, Pa., mfg. aluminium cans, cups and meat cans, for the Army, steam kettles for the Navy, condenser pans and piping for nitrate plants, gasoline tanks and various parts for airplanes, radiators for machine guns, and aluminium powder for flares.

REGISTER OF CIVILIAN RECORDS

- CHANDLER, F. W. (XIII) Vice-Pres., Nathan D. Dodge Shoe Co., Newburyport, Mass., mfg. shoes.
- CHASE, E. K. (III) Asst. Supt., Lead Smelter, American Smelting & Refining Co., Durango, Colo.
- CHASE, E. S. (XI) Asst. Sn. Engr., Engr. Div., N. Y. State Dept. of Public Health, investigating sanitary condition of the public water supplies, Plattsburg Camp, Camp Whittman, Peckskill Naval Camp, Watervliet Arsenal and the Newburgh Shipyards.
- CHIDESTER, A. M. (I) Horticultural Inspector, Los Angeles County, Whittier Heights Dist., Calif., engaged in control and eradication of agricultural or horticultural pests and diseases, especially in connection with the citrus orchards, also in noxious weed and rodent control.
- COE, M. A. (II) Supt., Stanley Rule & Level Co., Newark, N. J., mfg. hand tools for Govt.
- COES, H. V. (II) before U. S. entered the war, engaged through Gunn, Richards & Co., New York City, in reorganization of munition plants in Canada: High Explosive Shell Plant of Russel Motor Car Co., Toronto; Maintenance and Repair Depts., Canada Carbide Co.; reorganized purchasing methods of Allied Purchasing Comm., War Industries Bd., Washington, D. C., purchasing for the Allies in this country; Industrial Engr., with Ford, Bacon & Davis, New York City, engaged in designing and cons. of Toluol Plant, Clinchfield, Va., for International Coal Products Co., agents for Ord. Dept.; designed Marine Boiler Plant for Newport News Shipbuilding & Dry Dock Co., Richmond, Va.; reorganized Platt Iron Works, Dayton, Ohio; reorganized, Dyneto Electric Corp., Syracuse, N. Y., for Radio Div., Sig. C.; miscellaneous consulting work for T. N. T. Plant of War Dept., Nitro, W. Va.
- COEY, S. C. (VI) Asst. Supt., Mechanical and Electrical Depts., The Youngstown Sheet & Tube Co., Youngstown, Ohio; Works Supt., The Celluloid Co., in charge of mfg. airplane dope, map materials, hand grenades, gas mask eyes, and protractors, since 1 Sept. '17.
- CRITCHLOW, P. N. (I) Assoc. Head, Metallurgical Branch, Inspection Div., Ord. Dept., U. S. A., in charge on inspection of cannon forgings.
- DARLING, H. E. (III) Engr., American Telephone & Telegraph Co., working for Sig. C., securing, training and organizing 650 women telephone operators for service with the Sig. C. in France. (Page 403.)
- DAVIS, D. C. (VI) Patent Attorney, Westinghouse Electric Mfg. Co., East Pittsburgh, Pa., investigating schemes submitted to Naval Consulting Bd. (Page 281.)
- DAVIS, R. P. (I) Div. Engr., in charge highway cons., Q. M. C., Morgantown, W. Va.
- DEAVITT, W. J. (III) Supt. of Mines, Santa Eulalia Unit, American Smelting & Refining Co., Chihuahua, Mexico, producing lead used exclusively for war materials.
- DILL, COLBY (X), Asst. to Vice-Pres., Roessler & Hasslacher Chemical Co., Perth Amboy, N. J.; Works Mgr., The Perth Amboy Chemical Co., furnishing formaldehyde to Army and Navy.
- DISQUE, K. H. (I) Business Mgr., Ballistic Tests of Arty. Ammunition, Ord. Dept., Washington, D. C.
- DONOVAN, J. J. (IV) Chairman, Business Men's Comm., Red Cross, Oakland, Calif.
- DYER, R. L. (XII) Member, Local Draft Bd., Walla Walla, Wash., July '17—Mch. '18; Asst. Mgr. and Dist. Mgr., U. S. Shipping Bd., Emergency Fleet Corp., Seattle, Wash., since Mch. '18.
- EATON, H. D. (VI) Member, Medical Advisory Draft Bd., Dist. 2 and Dist. 3, Mass.
- ELIOT, E. M. (VI) Service Engr., Diamond Power Specialty Co., mfg. soot blowers to save fuel for ships of Emergency Fleet Corp., at arsenals, training camps, supply bases and powder factories.
- ELLIOTT, H. C. (I) Mgr., Eco Mfg. Co., Boston, Mass., mfg. piston rings for destroyers, ambulances, trucks, automobiles, motorcycles and tractors.
- EMERSON, C. M. (II) Chief, Order of Work Branch, Estimates and Requirements Div., Progress Sect., Ord. Dept., Washington, D. C., Sept. '18—Jan. '19.
- ENGLIS, W. F. (XIII) Sec. and Mgr., W. H. Bradford & Co., Inc., New York City, miners and shippers of bituminous coal.
- FARLEY, W. F. (I) Inspector, Inspection Dept. of the Associated Factory Mutual Fire Insurance Cos., Boston, Mass., inspecting munition plants mfg. munitions for the purpose of fire prevention.
- FARWELL, C. A. (I) Div. Engr., Fav, Spofford & Thorndike, Boston, Mass., designing and supervising engrs., Boston Army Supply Base, Construction Div., U. S. A.
- FURER, W. C. (IV) Inst., S. A. T. C., College of Hawaii, fall of '18.
- GARRIGAN, P. J. (VI) Experimental Dept., Heinze Electric Co., Lowell, Mass., assisting in development and production of magnetos for motors used by the Air Service; experimental work on searchlights for Air Service.
- GAYLORD, W. W. (II) Chief Draftsman, The American Brass Co., Coe Brass Branch, Torrington, Conn., in charge plant maintenance and improvements to handle munition work.
- GEIST, A. W., Jr., (VI) with American International Shipbuilding Corp., Hog Island, Pa. (Page 391.)
- GERHARD, N. P. (I) Inspector, Bd. of Water Supply, City of New York, June '06—27 Nov. '18; Resident Engr. for James H. Fuertes, Consulting Engr., working on designs for filtration works for the Nitro (W. Va.) Munitions Plant, 1 Apr. '18; Resident Engr., on public improvements in Cumberland, Md., involving a new distribution reservoir, additions to filter plant and water mains necessitated by the construction of a plant for the American Cellulose Manufacturing Co.

TECHNOLOGY'S WAR RECORD

- GIBBONS, M. J., JR. (VI) Engr. and General Supt. with M. J. Gibbons, Engrs. and Contractors, and M. J. Gibbons Supply Co., Dayton, Ohio, installing water supply, fire protection, plumbing, heating and ventilation for Wilbur Wright Aviation Field and concrete warehouse, Wilbur Wright Field; installed plumbing and heating, Camp Sherman, Chillicothe, Ohio, July—Dec. '18, Dayton-Wright Airplane Co., and other munition plants.
- GIDEON, S. E. (IV) Head of Aerial Navigation, Map Reading, Photographic and Observation Dept., U. S. Govt. School of Military Aeronautics, Austin, Texas.
- GRACEY, F. L., Sgt., 1 cl., Engrs. Corps, M. I. T. (later became R. O. T. C. and known as Advance Bn.); Inst., S. A. T. C.
- GREELEY, S. A. (XI) Supervising Engr., Cons. Div., U. S. A., Washington, D. C., designing and supervision installation of water supply and sewerage system and construction of 40 per cent addition to Camp Custer, Mich., '17; Sn. Engr., U. S. Shipping Bd., Feb. '18, reporting on health conditions in shipyard communities along Pacific Coast, New England Coast and in Great Lakes Dist.
- GREGSON, R. B. (II) Asst. Supt., Spencer Lens Co., Buffalo, N. Y., mfg. binoculars, aeroplane sights, machine gun sights, navy sights, and high grade optical glass. (Page 409.)
- GROESBECK, E. C. (V) Asst. Physicist, U. S. Bu. of Standards, Div. of Metallurgy, Washington, D. C.; assisted in carrying out some experimental work in the development of steel helmets at M. I. T. (Page 346.)
- GUERNSEY, G. R. (I) Engr. and Purchasing Agt., Machias Ship Construction Co., Machias, Me., building wooden ships.
- HALL, W. R. (I) Cons. Engr., Standard Oil Co., building a large warehouse in Salonica, Greece, for storing lubricating oils and better grades of kerosene oil used by the Allies; Cons. work in India since '17.
- HARDY, W. A. (II) Attorney in Legal Dept., Thomas A. Edison Industries, Orange, N. J.; Associate Legal Adviser in connection with the administration of the Selective Service Law.
- *HAYES, JAMES (I) with Fay, Spofford & Thorndike on Boston Army Supply Base. Died, 23 May '19.
- HEMPHILL, A. W. (II) Member of firm, Twombly & Hemphill, New York City, doing engr. work for construction of Camp Shelby, Hattiesburg, Miss. See Military Record.
- HERTZ, A. W. (IV) Asst. Engr., Cons. Div., U. S. A., engaged in work of constructing ord. depots and arsenals.
- HILL, GUY (VIII) Expert Radio Aid, Bu. of Steam Engr., Navy Dept., Apr. '16—Apr. '18. See Military Record.
- HOEFER, C. A. (VI) Sec. and General Mgr., Hoefer Mfg. Co., Freeport, Ill., mfg. machine tools.
- HOPKINS, W. A. (III) Asst., New England Div. Hq., Red Cross.
- HOTCHKISS, W. A. (VI) Machine and tool designer, Winchester Repeating Arms Co., New Haven, Conn.
- HURSH, ROBERT (III) Asst. Sec., Treas., and General Supt., Ore and Fuel Dept., Empire Zinc Co., Denver, Colo., in charge of purchase of zinc ores in Western U. S. A., British Columbia, and Mexico for smelting plants of New Jersey Zinc Co. and associated companies producing sulphuric acid, zinc oxide, spelter and zinc dust for Allied Govts.
- INGALSBE, F. R. (III) Mineral Examiner, Dept. of Agriculture, U. S. Forest Service, protecting forest resources in Dist. No. 1 of Forest Service; in charge of Fire Emergency Office, Spokane, Wash., July—Aug. '17; Missoula, Mont., July—Aug. '18.
- ISENBERG, H. O. (II) Supt. of Assembling and Testing, Wright Martin Aircraft Corp., New Brunswick, N. J., 1 Dec. '17; Asst. Factory Mgr., 1 June '18; Factory Mgr., 1 Oct. '18.
- JACKSON, R. T. C. (IV) Asst. Engr., Fay, Spofford & Thorndike, Boston, Mass., Designing and Supervising Engrs., Boston Army Supply Base; designed a 2500-ton concrete coal barge and a 7500-ton concrete cargo ship for the New England Transportation Corp.
- JOHNSON, C. E. (II) Engr. and Designer, Mead Morrison Manufacturing Co., Boston, Mass., engaged in mfr. of shells for British and French Govts. and gun mounts for the U. S. Navy; completed contracts for Emergency Fleet Corp.; designed coaling plant for British Ministry of Shipping, at Halifax, N. S.
- KASSON, C. L. (VI) in charge of some electrical test work during the construction of power plants at Watertown Arsenal, Watertown, Mass., and Victory Plant, Squantum, Mass.; carried on similar work at Fore River Shipbuilding Plant, Quincy, Mass.
- KENDALL, B. W. (VIII) Division Head, and Asst. to the Branch Head, Research Branch of Engr. Dept., Western Electric Co., New York City, studying amplifiers applied to various problems in submarine detection and producing vacuum tubes for use in radio work.
- KIDDER, J. W. (VI) Engr. Dept., New England Telephone & Telegraph Co., Boston, Mass.
- KNAPP, W. J. (II) Vice-Pres. and General Mgr., Electro Metallurgical Co., Union Carbide Co., National Carbon Co., New York City, producing ferro-alloys essential for welding and cutting steel, and lighting purposes, carbon electrodes for steel furnaces for mfg. of chlorine, aluminum, etc.
- LASHER, C. E. (VI) Sales Mgr. and Industrial Engr., Stone & Webster, at Pawtucket Gas Co., Pawtucket, R. I., installing and operating gas burning equipment for munition work; connected with the Pawtucket Chapter, Council of Defense.

REGISTER OF CIVILIAN RECORDS

- LEWENBERG, H. L. (X)** Asst. Vice-Pres., St. Louis Car Co., mfg. ammunition, spare parts, portable blacksmith shops and freight cars for A. E. F., Aug. '14—July '17; with the Fore River Plant, Bethlehem Shipbuilding Corp., for six months; Member of staff, Central Bu., Div. of Planning and Statistics, War Industries Bd., Aug. '18—31 Mch. '19; associated with various comms. of the War Industries Bd. and Council of National Defense; associated with W. C. Mitchell, Chairman of the Price Sect., War Industries Bd., 1 Jan.—28 Feb. '19; associated with Peck's "Industries and Price Regulation Comm." 1 Mch.—31 Mch. '19.
- LIGHT, H. U. (II)** Shop Supt., Public Works Dept., Navy Yard, Brooklyn, N. Y., in charge of alterations.
- LUEHRIS, D. M. (XIII)** Mechanical Engr., Civilian Asst. to a member of Expert Technical Staff, War Ord. Engr. Dept., Washington, D. C., in charge of redesign and building of the San Chamond 240 mm. caterpillar art. (Page 261.)
- LYONS, R. J. (XIII)** Asst. Purchasing Officer, U. S. Shipping Bd., Emergency Fleet Corp., at Washington, D. C., and Philadelphia, Pa., handling all cost work and securing supplies and materials necessary for the production of ships.
- MCDONALD, STATIRA CALDWELL** (Mrs. Nathaniel) (V) Clerk in Accountants Branch, Military Hospitals Comm. under Canadian Govt., Ottawa, Canada; Clerk in Stores Branch, Ottawa, Canada.
- McKAY, R. V. (III)** Supt. of Blast Furnaces, Bethlehem Steel Co., Steelton, Pa., in charge of operation of six blast furnaces and construction of a seventh, working on war orders for U. S. and Allied Govts.
- McKERNAN, J. N. (I)** Chairman of two Liberty Loan Comms.; Sec., Red Cross and Chairman, W. S. S. Comm., Plainville, Conn.
- MANNING, ELEANOR (IV)** Member of firm, Lois L. Howe & Manning, Boston, Mass.; planned and furnished canteens, including Boston Army and Navy Canteen on the Common; served on numerous comms.; acted as Sec., Operating Comm., and hostess on one of the shifts; planned alterations and furnishings for Suffrage Coffee House for Enlisted Men at Camp Devens, and the East Boston Canteen, connected with Y. M. C. A. and under the auspices of U. S. Shipping Bd.; Speaker on Liberty Loan Campaigns and Red Cross worker.
- MEARS, H. S. (III)** with Columbia Engr. Works, Portland, Ore., building wooden ships and with Portland Cordage Co., mfg. rope.
- MERRIAM, H. C. (V)** Chemical Engr., E. B. Badger & Sons Co., Boston, Mass., engaged in installation of wood distillation plants for production of methyl acetone and acetate of lime in connection with Bu. of Aircraft Prod. (Page 398.)
- MESSENGER, W. N. (VI)** Div. Traffic Engr., New England Telephone & Telegraph Co., Springfield, Mass.
- MONKS, GRACE B., Hon. Sec.,** English Comm., Women Munition Workers' Rest Comm., which provided a hostel for women suffering from industrial diseases, London, England, and a crèche for babies of munition workers.
- MOREY, C. B. (V)** Chief Chemist, Larkin Co., Buffalo, N. Y., mfg. glycerine, soaps, anti-dimming compound, etc.
- MUNROE, H. K. (VI)** Asst. Supt. of Power, Tacoma Railway & Power Co., Tacoma, Wash., in charge of construction and operation of electric railway and industrial power substations.
- MURPHY, J. E. (III)** with Fay, Spofford & Thorndike on Boston Army Supply Base.
- NASH, S. A. (II)** Asst. Inspector, Engr. Materials, Navy Dept., Bu. of Steam Engr., inspecting and testing all material under contract or order for the Navy in connection with Bu. of Steam Engr.; Hartford Inspection Dist., 1 Apr. '18; Resident Inspector, Springfield, Mass., 19 Apr. '18.
- NEWTON, S. P. (V)** Mgr., Chemical Dept., The Canada Paint Co., Montreal, Canada; Chief Chemist, The Sherwin Williams Co. of Canada, Ltd., in charge of mfg. of insecticides necessary for the protection of Canada's crops and in charge of chemical testing of the munitions output of the above companies, such as shell paints and varnishes. (Page 396.)
- NOBLE, G. C. (IV)** with Henry Raeder, Architect, Chicago, Ill., preparing drawings for buildings to be used as munition plants.
- NORTHROP, C. F. (VI)** Scout Executive, Waterbury Council, Boy Scouts of America; participated in W. S. S., Red Cross, Liberty Loan, and United War Work Campaigns; co-operated with Food Adm., Fuel Adm., and Farm Bu.
- ORCUTT, H. B. (I)** Inspection Engr., American International Shipbuilding Corp., Hog Island, Pa.
- PAGE, R. E. (II)** Volunteer with Fire Prevention Sect., War Industries Bd., acting in advisory capacity on fire protection work at Philadelphia Navy Yard, Naval Aircraft Factory, and Naval Stores.
- PATCH, R. R. (XI)** Chairman, Stoneham Fuel Comm., Fuel Adm.; Chairman, Drug Trade Sect., First Liberty Loan Campaign of New England.
- PATTERSON, H. R. (II)** Supt., Scott St. Works, Joliet, Ill., American Steel & Wire Co., mfg. barbed wire, nails, wire and wire hoops.
- PHELPS, F. S. (II)** Supt., Pacific Works American Steel & Wire Co., San Francisco, Calif., producing wire rope for Emergency Fleet Corp. for rigging vessels built on Pacific Coast and for Spruce Production Div., A. S.
- PHILBRICK, H. R. (VI)** Mgr., Philbrick-Booth Foundry Co., Hartford, Conn., mfg. castings for U. S. destroyers.
- PLACE, M. H. (I)** Capt. in the following drives in Milwaukee, Wis.; Third Liberty Loan, Second Red Cross Drive, Second War Savings Drive, Fourth Liberty Loan, United War Work Fund, Second Red Cross Membership, '19 War Savings, Milwaukee Co. Relief Fund, Fifth Liberty Loan.

TECHNOLOGY'S WAR RECORD

- PULMAN, O. S. (X) Asst. to Asst. General Mgr., National Carbon Co., Inc. Lakewood, Ohio, mfg. carbon products including headlights for locomotives, flashlights, and searchlights for Navy and for coast defense work.
- RAYMOND, C. A. (XII) Asst. Supt., New England Fuel & Transportation Co., mfg. gas, coke, tar, ammonium sulphate, benzol and toluol.
- RAYNOLDS, R. P. (III) Supt., American Smelting & Refining Co., Durango, Colo.; producing lead and copper; County Chairman, W. S. S. Comm.
- REED, R. O. (III) Mgr., Planning Div., W. H. McElwain Co., Manchester, N. H., mfg. army shoes.
- RICH, W. C. (VI) (IX) Sec. and Efficiency Engr., Minneapolis Steel & Machinery Co., Minneapolis, Minn., engaged in cvvt. work for Ord. Dept. and Emergency Fleet Corp.
- ROSS, R. J. (III) 1st Lt., American Protective League, investigating pro-German activities, Hartford, Conn. Volunteered in several engineering branches but not called.
- ROWE, E. B. (VIII) Asst. to Asst. Engr., American Agricultural Chemical Co., Boston, Mass.
- ROWELL, W. L. (II) Refrigeration Engr., H. W. Johns-Manville Co., Boston, Mass., constructing refrigerators and installing refrigerating machinery on destroyers, submarines and emergency fleet ships.
- RUGGLES, G. H. (III) Mill Supt., Consolidated Arizona Smelting Co., in charge of mills producing in the form of concentrates about 6,000,000 pounds of copper; Mill Supt., Inspiration Consolidated Copper Co., Inspiration, Ariz., Apr. '18—Nov. '19, producing in the form of concentrates 72,200,000 pounds of copper.
- SANTRY, J. V. (VI) Supt. of Machinery, American International Shipbuilding Corp., Oct. '17—June '18; Vice-Pres., Combustion Engineering Corp., New York City, mfg. mechanical stokers.
- SARGENT, R. N. (X) Works Mgr., The Roessler & Hasslacher Chemical Co., mfg. chemicals used in Chemical Warfare Service, and drugs used by Medical Dept.
- SHELDON, W. A. (III) Supt. of The Barstow Lease, Ironton, Colo., producing fluor spar for steel works and chemical plants.
- SHINGLER, G. P., JR. (V) Associate Field Director, Red Cross, Camp Jackson, S. C.
- *SIMPSON, G. C. (I) Pres., Capote Nitrate Co., producing potassium nitrate; Pres., Llano Manganese Co., mining manganese; Pres., W. E. Simpson Co., Engrs., San Antonio, Texas. Died, 16 Feb., '20.
- SMITH, E. M. (II) Salesman and Metallurgical Engr., Halcomb Steel Co., Syracuse, N. Y., mfr. high-grade tool steels for munition industries.
- SMITH, LILLIE C. (V) Head of Domestic Science Dept., and Teacher of Chemistry, Brookline High School, Brookline, Mass., working on food conservation; lectured for the State Bd. of Education; Chairman, Comm. on Canning in connection with the Brookline High School War Gardens.
- STEBBENS, R. G. (IV) with Fay, Spofford & Thorndike on Boston Army Supply Base.
- STEINHARTER, E. C. (VII) Examiner of candidates for 1st and 2d O. R. C. and for Aviation Corps. See Military Record.
- STONE, L. E. (VI) Member, Local Service Draft Bd., No. 2, Cleveland, Ohio.
- SWARTZ, PAUL (X) Asst. to Vice-Pres. and Comptroller, Curtiss Aeroplane & Motor Corp., Buffalo, N. Y., Apr. '18—July '19.
- TARR, F. A. (II) Plant Engr., and Production Engr., The Atlantic Corp., Portsmouth, N. H., a new shipbuilding plant constructing ten 8800-ton ships for U. S. Shipping Bd.; established a graphic control system, made special study of processes and established an inspection system and piece rates.
- TAYLOR, A. C. (II) Engr., Allentown-Bethlehem Gas Co., Allentown, Pa., making illuminating and fuel gas for essential war industries in Lehigh Valley, including The Bethlehem Steel Co., and The International Motor Car Co.; by-product of plant sent to du Pont Powder Works.
- TAYLOR, D. M. (II) Inst., U. S. Shipping Bd. School for Merchant Marine Engr. Officers, New York City. (Page 34.)
- TERRELL, W. P. (II) Director of Emergency War Training, S. A. T. C., under Comm. on Education and Special Training, Prairie View State Normal and Industrial College, Texas; in charge of training of soldiers as mechanics.
- TOMLINSON, E. F. (XIII) Dept. Supervisor, U. S. Shipping Bd., Emergency Fleet Corp., purchasing ship's equipment, 5 Mch.—15 Dec. '18.
- TRASK, W. H. (II) Consulting Engr., Coal Mining Properties; Consulting Engr., Western Dist., Bu. of Inventions, U. S. Aviation Service, Salt Lake City, Utah.
- VAN HOOK, F. J. (I) Field Engr., Westinghouse, Church, Kerr & Co., Muscle Shoals, Ala.
- VARIAN, J. P. (III) Investigator, New Jersey Zinc Co., Palmerton, Pa., engaged in experimental work, Spelter Dept.
- WALKER, W. F. (II) Asst. Master Mechanic, Wood Worsted Mill, Lawrence, Mass., mfg. serges for army and navy uniforms; in charge of repairs and installation of machinery.
- WALSH, W. J. (X) Plant Supt., Fayette R. Plumb, Inc., Philadelphia, Pa., mfg. tools and side arms for the U. S. Govt. and Emergency Fleet Corp.
- WALTER, E. A. (IV) Supervisor of solvent recovery and later Efficiency Engr., Carney's Point Works, Smokeless Div., E. I. du Pont de Nemours Co. (Page 358.)

REGISTER OF CIVILIAN RECORDS

- WARD, FRANCES, (MRS. VINTON) (VIII) Asst. Prof., Div. of Home Economics, Agricultural College, University of Minnesota, experimenting on food preparation, with substitutes for flour, and canning without sugar.
- WATT, A. P. (III) Consulting Engr., Bu. of Mines, War Mineral Bd., in regard to production of war minerals.
- WEBBER, P. B. (II) Treas. and General Mgr., Athol Gas & Electric Co., Marlborough Electric Co., Marlborough-Hudson Gas Co., companies furnishing electric power and gas for the mfg. of woollens, shoes, bullets, shells and tools used by Army and Navy.
- WEBBER, T. G. (II) General Supt., Blackstone Valley Gas & Electric Co., Pawtucket, R. I., supplying power to mills directly or indirectly connected with producing materials for Govt.
- WELLS, A. E. (III) Associate Chief of Sulphur Pyrites, Sulphuric Acid and Heavy Chemicals Sect., Chemicals and Explosives Div., War Industries Bd., and U. S. Bu. of Mines detailed to War Industries Bd.; Consultant with Raw Materials Sect., Procurement and Production Div., and Ord. Dept.
- WHITE, G. F. (V) Special Expert for Hygienic Laboratory, U. S. Public Health Service, Washington, D. C., investigating T. N. T. poisoning; Inst. in Biological Chemistry, S. A. T. C., Clark College and University, Worcester, Mass.
- WHITE, N. A. (XIII) Chief Draftsman, Office of Superintending Constructor for U. S. Navy, New York Shipbuilding Corp., Camden, N. J., inspecting work on destroyers and battleships for the Navy.
- WHITING, H. S. (VI) Consulting Illumination Engr., U. S. Shipping Bd., Emergency Fleet Corp., in charge of lighting of shipyards; Mgr., Washington Office of J. Livingston & Co., Inc., in charge of electrical construction in govt. camps and aircraft factories.
- WILDER, S. W. (II) Sec. and Supt., Dolphin Jute Mills, Patucon, N. J., mfg. jute products for army and navy requirements.
- WILFLEY, C. R. (III) Local Fuel Adm., Ouray, Colo., producing the only fluor spar ever mined in the San Juan Mining Dist., for open-hearth steel mfg.
- WILLCOX, F. H. (V) Sec. and Consulting Engr., Freyn Brassert Co., Chicago, Ill., engaged in construction of blast furnace plants; Consultant on fuel economy and on burner equipment superheaters, govt. nitrate plant.
- WILEY, N. C. (XIII) Chief Draftsman and Technical Asst., Seattle Construction & Dry Dock Co. and U. S. Shipping Bd., Emergency Fleet Corp., Seattle, Wash., checking plans from ten steel yards in North Pacific Dist. for ships building for U. S. Shipping Bd., and supervising construction of wooden ships in North Pacific Dist. building for U. S. Shipping Bd.
- WILLIAMS, H. L. (III) Western Representative, Empire Zinc Co., Salt Lake City, Utah.
- WILLIAMS, MARY HUNNEWELL (Mrs. S. M.) (VII) helped Local Red Cross.
- WILLIS, C. F. (III) Director, Arizona State Bu. of Mines on mineral production; Sec., Comm. on Scientific Research, State Council of Defense; Director, First Y. M. C. A. drive, Ariz., N. M. and West Texas; Director for Ariz., Second Y. M. C. A. Drive; Asst. Director, Ariz. United War Work Drive; Director for Ariz., Jewish and Armenian Relief Drives.
- WOLFE, S. C. (I) Resident Engr., Lockwood, Greene & Co., of Canada, Montreal, P. Q., on building of Boston Rubber Shoe Co. for mfg. rubber boots for Govt. and resident engr. on building for Henry Thompson & Sons Co. at New Haven, Conn., for mfg. hack saws.
- WOOD, D. M. (I) with U. S. Shipping Bd., Emergency Fleet Corp.; Asst. for Special Assignments; Chief Examiner New England Dist. (Wood Ship Div.); Financial Asst., New England Dist.; (wood and steel ships); in charge of approval and recommendation in regard to contract extras and claims and financial studies.
- WRIGHT, J. M. (XIII) Govt. Appeal Agent, Local Board 157; Associate Member, Legal Advisory Bd., Selective Service Bu. of New York City.
- WYMAN, W. B. (II) Chairman, Liberty Loan Comm. for all Five Loans, Crown Point, Essex Co., N. Y.
- YOUNG, H. E. (VI) Sales Mgr., The Minneapolis General Electric Co., and Northern States Power Co., providing power supply for many industrial plants doing war work; in charge of organizing certain sections of Minn. for Liberty Loan Campaigns; lectured throughout the state.

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- ADAMS, F. O., JR. (IV) Draftsman, Engr., later Cons. Dept., Liberty Shipbuilding Co., Wilmington, N. C., Agent for U. S. Shipping Bd., Emergency Fleet Corp., working on plans for all work from plant construction to launching of ships and on development of concrete ships. (Page 393.)
- ADAMS, P. L. (VI) Engr. and Salesman, John Wood Iron Works, Portland, Ore., producing building equipment for the Emergency Fleet Corp., and for U. S. Spruce Production Div., preparing designs and estimates on work for shipyards in Columbia River Dist., and overseeing production.
- ALBRO, R. C. (I) Gen. Supt., New England Dist., Fred T. Ley & Co., Inc., Springfield, Mass., managing and overseeing cons. work for war industries.
- ALLBRIGHT, CLIFFORD (IV) Asst. Chief, Cons. Div., Washington, D. C., working on standard specifications and details for war building projects and emergency structures.
- ALLEN, LAWRENCE (I) Dept. Mgr., W. H. McElwain Co., Boston; assisted in Leather-Rubber Branch, Clothing and Equipage Div.; Town Chairman for five Liberty Loan, two Red Cross, all Y. M. C. A. and Allied War Drives.

TECHNOLOGY'S WAR RECORD

- ALVORD, H. B. (I) Inst., Wentworth Institute, Boston, Mass., training specialists for Government.
- ARNOLD, A. B. (II) Mech. Engr., The American Agricultural Chemical Co., Elizabeth, N. J., introducing labor-saving devices to keep up normal production of fertilizer with fewer men.
- BACHMANN, FREDERICK (XIII) Member, Legal Advisory Bd., East Orange, N. J.
- BAKER, C. E. (XI) Pres. and General Mgr., Boston Dredging Co., East Boston, Mass., working on emergency contracts for Govt., and for shipyards of U. S. Shipping Bd.
- BAKER, C. F. (IV) Inst., S. A. T. C., Kansas State Agricultural College, Manhattan, Kan.; Member, Local Council, and worker War Camp Community Service.
- BARKER, BERTHA I. (V) (VII) Technician, running electro-cardiograph, Peter Bent Brigham Hospital, Boston, Mass.
- BARKER, C. C. (I) Asst. Engr. to County Engr., Essex County, Mass., in charge of highways, etc.
- BARKER, J. M. (I) Consulting Engr., Aviation Div., Bu. of Cons. and Repair, Navy Dept., Washington and Philadelphia, working on designs of large flying boats, transatlantic type.
- BARNES, R. B. (IV) Resident Architect, U. S. Nitrate Plant No. 4, Cincinnati, Ohio, for Air Nitrates Corp., and George A. Fuller Co.; with Cons. Div., Q. M. C., Aug. '18—Jan. '19, in connection with inventories and reports for Cons. Q. M.
- BECK, ISABEL WORTHINGTON (Mrs. J. A.) (IV) Red Cross worker.
- BENNETT, E. E. (V) Mgr., National Milk Sugar Co., New York City, filling govt. contracts for U. S. Army British Govt. contracts for allied armies in Europe and field hospitals in France.
- BIGELOW, W. W. (II) Asst. Div. Engr., Fay, Spofford & Thorndike, Consulting Engrs. on Boston Army Supply Base, South Boston, Mass.
- BRADLEY, J. C. (VIII) Metallurgist, The American Brass Co., Waterbury, Conn., mfg. brass and cupro-nickel for small arms and shells, condenser tubes for ships, brass, bronze, nickel silver and copper, in sheets, rods and tubes, for war purposes.
- BRAGDON, C. R. (X) Chemical Director, Ault & Wiborg Varnish Works, Cincinnati, Ohio, superintending mfg. of paints and enamels for motor trucks, hand grenades, army safes, lockers and gas masks.
- BROOKS, A. A. (II) Mech. Engr., Turbine Research Dept., General Electric Co., Lynn, Mass., worked on mfr. of feed for Rice centrifugal gun, assisted in development of turbo supercharger.
- BURHANS, H. N. (X) Hardware Merchant, Syracuse, N. Y., supplying essential industries with material.
- BURWELL, A. L. (V) Asst. Supervisor of Production, Smokeless Powder Depts., E. I. du Pont de Nemours & Co., Carney's Point, N. J., mfg. smokeless powder.
- BUTLER, C. M. (V) Chemist, du Pont Powder Co., at City Point, Va.
- CENEDELLA, A. H. (I) with Fay, Spofford & Thorndike on Boston Army Supply Base.
- CHAFFEE, E. L. (VI) Civilian Engr., Sig. C., Sept. '18—Jan. '19, developing a type of radio communication free from interference than ordinary systems; demonstrated system in France in Sept. and Oct. '18, and in England in Dec. '18. (Pages 28 and 278.)
- CHRISTENSEN, A. O. (III) Engr., Wharton Steel Co., Dover, N. J., mining iron.
- COFFIN, C. W. (I) Asst. Engr. of Cons., Cantonment Div., Cons. Q. M. Dept., Camp Upton, Long Island, N. Y.
- CONOVER, J. W. (VI) Electrical Designer, Bu. Yards and Docks, Navy Dept., Washington, D. C.
- CORRELL, J. A. (VI) Inst. in Gas Engines, U. S. Army School of Military Aeronautics, University of Texas, Austin, Texas, June—Oct. '17; Member of Comm. for establishing schools for Radio Operators and Automobile Mechanics for U. S. Army, University of Texas; Head of Engines Div., School of Military Aeronautics, University of Texas, May—Sept. '18.
- COUPAL, J. S. (III) Consulting Mining Engr., engaged in essential mineral consulting work until Nov. '18. See Military Record.
- COWEN, E. R. (I) Chief Engr., L. W. Hancock, General Contractor, Louisville, Ky., building railroad lines and bridge trestles for two cantonnments.
- CRANE, G. A. (I) Mgr., George A. Fuller Co., Ltd., Detroit, Mich., constructing grain elevators, paper mills, offices, warehouses, and a coal and ore dock.
- CROSBY, R. H. (VI) Designing Draftsman, Curtiss Aeroplane Corp.; Chief Draftsman, Wright-Martin Aircraft Corp., and Standard Aero Corp.; Engr., Haskelite Manufacturing Corp., in development of plywood as airplane material.
- DAVIS, J. A. (III) Supt., Mining Experiment Station, Bu. of Mines, Dept. of the Interior, Fairbanks, Alaska, developing mining industry, Territory of Alaska; in charge of publicity, Red Cross Christmas Drive, '18; Auditor, Alaska Comm., Fatherless Children of France.
- DICKSON, V. H. (II) Govt. Inspector of Ord., Holt Manufacturing Co., Peoria, Ill., building tractors for British and French Govts., 15 Nov. '17; in charge, machine shop inspection, 1 Feb. '18; in charge assembly inspection and spare parts shipments; 1 May; in charge govt. storekeeping and inspection of incoming materials, 1 Sept.
- EATON, C. A. (II) Resigned Captaincy in U. S. A., Oct. '15; Supt. of Cons. and Operator, Loading Plant for British 18-lb. shrapnel, Canada; Supt., shell mfg. plant for 6" British high-explosive shell; returned to U. S. A. at request of Ord. Dept., Mch. '18. See Military Record.

REGISTER OF CIVILIAN RECORDS

- EGAN, S. J. (XIII) Chief Draftsman, Hull Dept., Navy Yard, Boston, Mass., 19 Oct. '17.
- EISENHART, M. H. (X) Production Mgr., Bausch & Lomb Optical Co., Rochester, N. Y., mfg. range finders, field glasses, sights, optical glass, and fire control instruments, Dec. '17. (Page 408.)
- EVANS, JOHN (VI) State Director of War Savings for Colo., under Treasury Dept.; Colo. Committeeman for Capital Issues Comm.; Vice-Chairman, State Liberty Loan Comm.; Member, State Council of Defense for Colo. See Military Record.
- FALES, O. G. (II) Asst. Mgr., The Gregg Co. Ltd., Hackensack, N. J., mfg. narrow gauge railway equipment for U. S. and French Govts.
- FARRINGTON, H. P. (I) Mgr., Appraisal Dept., New York office of Alien Property Custodian, in charge of valuation and preparation for sale of enemy-owned properties.
- FISHER, C. W., JR. (XIII) Naval Constructor, U. S. N., stationed at Navy Yard, Puget Sound, Wash., Feb. '18.
- FISHER, H. E. (II) Treas., Machine Shop, Ayer, Mass.; assisted in developing a telephonic device for use on motorcycles, by means of which constant communication was established between the motorcycle and its station. See Military Record.
- FREDERICK, PAUL (VI) Transformer Specialist, General Electric Co., Pittsfield, Mass.
- FREEDMAN, L. A. (II) Production Expert, Propeller Sect., Equipment Div., Sig. C., Washington, D. C., 16 Jan. '18; Special investigation to increase battery output, Edison Storage Battery Co., Orange, N. J.; invented machine for filling glass ampules with chlorinated lime; Aeronautical Mech. Engr., Aircraft Div., Bu. Construction and Repair, Navy Dept., Washington, D. C., 30 July—30 Nov. '18.
- FRIEND, F. W. (IV) with Fay, Spofford & Thorndike on Boston Army Supply Base.
- GAMBRILL, G. T., JR. (III) Mgr., Mfg. Dept., The Barrett Co., Fairfield, Ala., mfg. naphthalene, anthracene, and coke for war materials.
- GARRATT, J. E. (I) Office Engr., Water Supply Engr. Office, Bd. of Water Commissioners, Hartford, Conn., supplying water to Colts' Fire Arms Works and other war supplies factories.
- GOODWIN, E. S. (IV) with Builders Iron Foundry, Providence, R. I., testing cylinders for transports and with River Spinning Co., millwrighting under French Govt. contract.
- GOULD, G. S. (I) General Supt., Roy H. Beattie, Fall River, Mass., marine and submarine cons. for Bu. of Yards and Docks and civil corporations.
- GREENE, A. E. (VIII) Vice-Pres. and Engr., Greene Process Metal Co., Greene Electric Furnace Co., and Malleable Steel & Iron Co., Seattle, Wash., constructing and installing electric steel melting furnaces for making steel castings for govt. uses.
- GREENE, J. F. (I) Cons. Engr. and General Mgr., Carter Halls Aldesign Co., Ft. Williams, Canada, Contractors and Engrs. on cons. of eighteen permanent concrete bridges replacing wooden trestles on Canadian Pacific and Govt. Railways. Volunteered as Cons. Engr., Class I; armistice prevented entering service.
- GREENWOOD, P. P. (VI) Inspector for the General Engr. Depot, Panama; Panama Canal Representative and Inspector.
- HALL, R. H. (II) Tool Designer, The Yale & Towne Manufacturing Co., Stamford, Conn., designing bomb release mechanism, rifle grenades, airplane destroyers, and liquid pumps for War Dept.
- HAMILTON, F. E. (VI) Operating Engr., The Koppers Co., Pittsburgh, Pa., cons. and operation of by-product coke oven plants.
- HAMPTON, L. C. (III) Salt Supt., Potash Plant, Hercules Powder Co., San Diego, Calif., extracting potash, acetone, acetic anhydride, iodine and numerous by-products from kelp. (Page 363.)
- HANFORD, J. W. G. (II) Chief Draftsman, Machinery Div., Navy Dept., Navy Yard, Puget Sound, Wash., 15 Nov. '16, in charge of all machinery and electrical design for ships repaired or building at Yard; converted passenger ships Great Northern and Northern Pacific into troop transports, two German ships into naval auxiliary vessels, and many commandeered vessels into patrol boats.
- HASTINGS, H. B. (I) Chairman, Fresh Fish Comm., Federal Food Adm. for Oregon; Auditor and Adviser, Portland Milk Commission; Special Investigator, Salmon Fishing Industry of Puget Sound, Food Administrator for Washington; Dist. Mgr., Y. M. C. A., United War Work, Red Cross Christmas and War Savings Stamp Drives; Member, Multnomah County Council of Defense. (Page 313.)
- HASTINGS, WARREN (III) Mine Supt., New Jersey Zinc Co., Ogdensburg, N. J., producing zinc ore for mfg. marine paints, tire rubber, special brasses and pharmaceutical zinc oxide for Govt.
- HINCKLEY, J. P. (VI) New York Mgr., L. E. Knott Apparatus Co., mfg. special firing device for Navy Dept., scientific instruments and laboratory equipment; Chief Registrar and Asst. to the Legal Advisory Bd. of the Local Bd.; Ex., Local Dist. Liberty Loan Organization.
- HOSEA, R. G. (I) Hydrographer, South Platte River Div., Engr. Dept., State of Colo., in charge of distribution of reservoir runs to Henrylyn Irrigation Dist. to save wheat, a war measure instituted by Water Conservation Comm., Council of Defense.
- HOWE, C. D. (I) Chief Engr., Dept. of Trade and Commerce, Canada, in charge of cons. and maintenance of govt. terminal grain elevators.
- HUDSON, R. G. (VI) Director of Electrical Welding Research, U. S. Shipping Bd., Emergency Fleet Corp.; Member, Electrical Welding Comm. (Page 348.)

TECHNOLOGY'S WAR RECORD

- HULL, A. W. (XIII) Chief of Order Dept., Newport News Shipbuilding & Dry Dock Co., Newport News, Va.
- JACCARD, F. C. (III) Mechanical Supt., Anaconda Copper Mining Co., Butte, Mont., producing copper, zinc, and manganese ores.
- JACOBSON, CONRAD (V) Resident Surgeon, Peter Bent Brigham Hospital, Boston, Mass.; Inst. in Surgery, Harvard Medical School.
- JAMES, E. W. (I) Asst. Chief Engr., U. S. Bu. of Public Roads, Washington, D. C., routing trucks for Motor Transport Corps from Detroit and Cleveland sections to tide water.
- JANSSON, A. H. (XIII) Representative, Munson S. S. Line, New York City, on cons. of steamships building at Newport News and Sparrow's Point, Jan. '17; Resident Inspector, Hull and Machinery, Newport News Shipbuilding & Dry Dock Co., U. S. Shipping Bd., Emergency Fleet Corp., in charge of maintenance and upkeep of ships engaged in war and domestic trade.
- JOHNSTON, J. F. (I) Service Mgr., Union Construction Co., Oakland, Calif., work in shipyards, '17.
- KEELING, T. C. (VI) Pres. and Gen. Mgr., Nashville Machine Co., Tenn., erecting power plants for Govt. Powder Plant, Nashville, Tenn., Air Nitrates Corp., U. S. Engr. Dept., and Wood Alcohol Plant at Lyles, Tenn.
- KENDALL, A. S. (IV) Capt., Newton Liberty Loan, War Fund, and Red Cross Drives; Asst., Draft Bd., Newton, Mass.
- KNIGHT, R. F. (VI) Asst. to General Supt., United Shoe Machinery Corp., Beverly, Mass., making machines for mfg. shoes for army and navy, and for mfg. harnesses and cavalry fittings, soldiers' belts, leggings, and other equipment.
- KUDLICH, RUDOLF (II) Mechanical Engr., Bu. of Mines, Dept. of Interior, Pittsburgh, Pa., equipping laboratories used for various war investigations, and experimental work on use of fine coal, in pneumatic stoker for Emergency Fleet Corp.
- LAMONT, C. R. (III) Asst. Plant Engr., Fore River Plant, Bethlehem Shipbuilding Corp., Quincy and Squantum, Mass.
- LANGENHEIM, F. E. (I) Civil and Hydraulic Engr., American Ord. Base Depot in France Div., Ord. Dept., Washington, D. C., 1 Sept.—10 Oct. '17. See Military Record.
- LEE, E. G. (I) Asst. Engr., Southern Power Co., Charlotte, N. C., design and cons. of hydro-electric stations to supply power for ammunition textile plants mfg. war materials.
- LEWIS, H. M., JR. (III) Supt. of Tests, Asst. to Mgr. of Shell Plant and Asst. Mgr., Heat Treating Dept., International Arms & Fuze Co., Bloomfield, N. J., testing British combination fuses and U. S. 2 1/2" fuses.
- LIBBY, H. C. (I) Asst. Engr. of Bridges, Lines East, Southern R.R.; arranged for disposition of troops guarding bridges and structures; routed railway artillery over Southern R.R., and designed structures made necessary to handle war traffic.
- LINDSAY, R. W. (X) Mgr., Industrial Sales, Pratt & Lambert, Inc., Buffalo, N. Y., furnishing airplane dope, shell varnish, and special paints for mfr. of govt. materials.
- LORING, H. D. (I) Chief Engr. and Acting Sec., The Ferro Concrete Construction Co., Cincinnati, Ohio, building a small arms ammunition plant in Cincinnati, and buildings for essential industries.
- McCHESNEY, H. H. (VI) Sales Engr., Halcomb Steel Co., Chicago, Ill., demonstrating use of tool and alloy steels.
- McELROY, J. A. (I) (II) Mech. Engr., Equipment Div., Union Metallic Cartridge Co., Bridgeport, Conn., in charge of building and repairing presses and automatic feeding devices; City Engr. of Bridgeport, Jan. '18; called on by the Army Engrs. and U. S. Housing Corp. to do work for their depts.; volunteered for service in '17 and '18, but unable to pass physical examination.
- MacGREGOR, F. S. (VIII) Engr., Development Dept., E. I. du Pont de Nemours & Co., Wilmington, Del., assisting in utilization of smokeless powder war plants and cellulose supply for powder mfg.
- MacGREGOR, M. E. (VIII) Member, Local Draft Bd. No. 7, Boston and Belmont.
- MARTIN, W. H. (I) Asst. Engr. of Design and Cons., Atlantic Loading Co., Amatol, N. J., for Ord. Dept., 1 Apr.—Oct. '18; this plant handled shells, grenades, and trench mortar ammunition. (Page 365.)
- MIENNER, F. B. (XIII) Works Engr., Scullin Steel Co., St. Louis, Mo., in charge of govt. contracts, including design, cons., and operation of shell forging plant for a 4000 daily capacity of 9.5 high explosive howitzer shells.
- MILLER, S. R. (II) 1st Duty Sgt., Co. T, Cincinnati Home Guards; served during Ohio River flood in '18 on rescue duty, during a police strike, on police duty, and during a strike in the City Fire Dept., acted as fireman.
- MINER, E. A. (I) Machinist, Naval Aircraft Factory, Navy Yard, Philadelphia, Pa.; Bethlehem Shipbuilding Corp., Quincy Works, and with Norton Co.
- MOLLER, KENNETH (II) Asst., later Chief of Div., Mfg. Branch, Clothing and Equipage Div., Q. M. C., Washington, D. C., and New York City, in charge of relations between this Div. of Q. M. C., and all General Supply Depots. Civilian with rank of Col., Q. M. C.
- MOODY, H. L. (X) Mgr., Power Div., Westinghouse Electric & Manufacturing Co., Philadelphia, Pa., in charge of turbine, condenser, and stoker work.

REGISTER OF CIVILIAN RECORDS

- MOORE, J. G. (IV) Engr. on reinforced concrete design, Truscon Steel Co., Youngstown, Ohio, later Sales Engr. in Foreign Trade Dept.
- MORRILL, F. W. (I) Asst. Engr., Ferro Concrete Construction Co., Cincinnati, Ohio, building factories for essential industries.
- MORRILL, R. D. (II) Engr., Windsor Machine Co., making Gridley automatic single and multiple spindle lathes, used for making shrapnel cases and other munitions of war.
- MURFEY, G. A. (VI) Chief Engr., The Browning Co., Cleveland, Ohio, mfg. locomotive cranes.
- NICHOLS, P. R. (VI) Inspector, Associated Factory Mutual Fire Insurance Cos., Boston, Mass., inspecting factories making war supplies from a fire protection point of view.
- OTIS, G. W. (I) General Mgr., American Blue Stone Co., Portageville, N. Y., furnishing blue stone sills and copings for mfg. buildings erected for war work.
- PAGON, W. W. (I) 1st Asst. Cons. Q. M., Camp Meade, Md.; 1st Asst. Cons. Q. M., Curtis Bay Ord. Depot, Md. See Military Record.
- PALMER, H. S. (VIII) Asst. Traffic Engr., New England Telephone & Telegraph Co., Boston, Mass.
- PARLIN, R. W. (XI) Engr. in charge of employment and training of operatives, Personnel Director, Asst. to Ex-Mgr., later Asst. to Vice-Pres., Air Nitrates Corp.; Special Agent Ord. Dept., New York City, Muscle Shoals, Ala., Toledo and Cincinnati, Ohio, charged with design, cons. and operation of Nitrate Plants using air as source of nitrogen, Dec. '17.
- PRATT, A. D. (II) Asst. Advisory Engr., The Babcock & Wilcox Co., New York City, mfg. marine and stationary water tube boilers and superheaters for Navy, U. S. Shipping Bd. and Govt. Depts.
- RAND, ROBERT (II) with Fay, Spofford & Thorndike on Boston Army Supply Base.
- RANNEY, WILLIS (I) Supt. of Cons., Riegos y Fuerza del Ebro, Spain; aided officers of the Engr. Corps purchasing stock and cons. machinery for use of the Allies, Dec. '17.
- REED, E. H., JR. (IV) in charge of plans, Edward H. Bennett, Town Planner, Camp Grant, Ill., Sept.—Dec. '18.
- REED, H. D. (VI) Asst. Traffic Engr., New England Telephone & Telegraph Co., Boston, Mass., planning toll circuits and specifying toll routings in connection with increased traffic, especially at Camp Devens.
- REMICK, A. T. (IV) Asst. to Vice-Pres. and Gen. Mgr., Pressed Steel Car Co., Pittsburgh, Pa., which made shells, artillery trucks, limbers, and freight cars.
- RICHARDS, K. W. (I) Chief Engr., Cons. Div., Q. M. C.; Asst. Engr., later Chief Engr., Cons. Div., North Atlantic Coast Arty. Dist., constructing temporary buildings, water supply and sewer systems, electric light lines, wharfs and roads at cantonments, Jan. '18—Apr. '19.
- ROBBINS, D. G. (II) Engr., Triplex Safety Glass Corp., Mt. Vernon, N. Y. (Page 66.)
- RUNEY, C. F. (V) Mgr., Potash Reduction Co., Hoffland, Neb., largest producers of potash salts for fertilizer and munitions in U. S. (Page 397.)
- RUSSELL, C. B. (II) Service Engr., Dodge Bros., Detroit, Mich., mfg. motor vehicles, regular and special equipment of repair parts for govt. cars.
- SCHMIDT, F. B. (IV) Asst. to Architect on Symington Corp. plant for mfr. of 155 mm. shell for govt., Chicago, Ill.
- SHARP, B. K. (XIII) Head Draftsman, for U. S. Shipping Bd., on design of Maxim's torpedo-proof ship; Naval Architect, with Morgan Barney, on conversion of three ore barges to oil carriers by use of cement bulkheads.
- SHIELDS, F. B. (V) Treas. and Mgr., The Napco Corp., Indianapolis, Ind., producing waterproof glue used in cons. of laminated wood for airplanes and seaplanes for U. S. and the Allies.
- SMALL, GILBERT (II) Asst. Engr. on Foundation Design, Fay, Spofford & Thorndike, Supervising Engrs., Army Supply Base, South Boston, Mass.
- SOULE, WINSOR (IV) Mgr., Fourth Liberty Loan Campaign and Red Cross Drive, Santa Barbara, Calif.; Member, Ex. Comm., Local Chapter, Red Cross; Chairman, War Work Comm., Santa Barbara Community Council.
- SPEAR, H. G. (X) Dept. Head, Brown Co., Berlin, N. H., making sulphite cellulose for war orders.
- SQUIRE, E. H. (II) Pres., Allen-Squire Co., and Factory Mgr., Allen-Trail Webster Co., Spencer, Mass., mfg. standardized work shoes.
- STARKWEATHER, O. H. (IV) Production Engr., New England Road Machine Co., designing and mfg. gravel and rock crushing machinery and screen and conveyor plants at Hingham Naval Depot, Q. M. Terminal, South Boston, and for the French Govt.
- STEVENS, H. A. (II) Engr., Arty. Carriage and Motor Vehicle Sects., Ord. Dept., Washington, D. C.; Representative Member, Sub-Comm. of Engrs. on U. S. Standard Railway Car Designs, standardizing equipment for U. S. Railroad Adm.
- STEVENSON, A. F. (VII) Sn. Engr., U. S. Public Health Service, New York City, in connection with control of milk supplies in Cantonment Zones; designed and constructed "reconstructed milk" plant at U. S. Explosives Plant "C", Nitro, W. Va., producing 20,000 quarts of bottled milk daily.
- STOCKWELL, F. C. (VI) Asst. Prof., Electrical Engr., S. A. T. C., Stevens Institute of Technology, Hoboken, N. J.; Inst., during period of organization, U. S. N. Steam Engr. School for Engr. Officers at Hoboken.

TECHNOLOGY'S WAR RECORD

- SWETT, P. N. (I) Prof., S. A. T. C., Middlebury College, Middlebury, Vt., giving courses in Military Topography and Map Making.
- TASHJIAN, A. H. (IV) Consulting Engr., Water Transport Branch, War Dept., design of reinforced concrete troop transport steamers.
- TAYLOR, G. R. (VII) Sec., Sub-Region No. 6, Region No. 4, War Resources Comm. of War Industries Bd., Scranton, Pa.
- TEMPLE, E. H., JR. (I) (III) Cons. Mgr., Aberthaw Construction Co., Boston, Mass., building Victory Destroyer Plant, Squantum, Mass., and plants at Cambridge, Buffalo, Providence, New Britain, Sparrow's Point, and elsewhere, for Govt.
- THACHER, S. P. (V) Member, Sub-Comm. on Pneumatic and Solid Tires, War Service Comm. of the Rubber Industry of the U. S. A.; aided in standardizing tire types and specifications; helped to develop new types for airplanes and motorized artillery. (Page 401.)
- THOMAS, J. J. (II) Consulting Munition Engr., American Can Co., Westfield, N. J.; Chairman, Military Comm., Westfield Branch, National Security League.
- THORNTON, E. A. (I) Asst. Supt. of Mines, Ray Consolidated Copper Co., Ray, Ariz., producing 7,500,000 pounds of copper per month during war.
- TRAUERMAN, C. J. (III) Managing Director, U. S. Manganese Corp. and Monarch Mining and Power Co., Helena, Mont., in charge of Ophir Mine and Mill, Butte, Mont., producing pink manganese for war purposes; Member, U. S. Public Service Reserve, Aug. '17.
- TRESNON, J. E. (VI) Elect. Engr., National Projectile Factory, Lancaster, Eng., under Ministry of Munitions, from Dec. '15—Aug. '18.
- TUPPER, F. W. (I) Field Representative of Education and Training Dept., later Research Asst., Electric Welding Comm., Emergency Fleet Corp., Philadelphia and New York.
- TURKINGTON, E. E. (VI) Engr., Fire Prevention Sect., War Industries Bd., Boston, Mass.
- TURNBULL, W. F. (II) Special Agent, U. S. Employment Service, Dept. of Labor, Washington, D. C., July '18.
- WALDO, W. G. (I) Dist. Supervisor, Community Organization Branch, Industrial Service Sect., Production Div., Ord. Dept., in charge of Sheffield, Florence and Tuscumbia (Ala.) living and housing conditions of munitions workers at govt. nitrate plants; Chairman for Colbert County, National War Savings Comm.
- WALKER, P. B. (I) Asst. Engr. in charge of the Progress Dept., Fay, Spofford & Thorndike, Supervising Engrs., Boston Army Supply Base, South Boston, Mass.
- WARE, RAYMOND (XIII) Sec. and Washington Representative, Thomas Morse Aircraft Co., Ithaca, N. Y., mfg. training aircraft for Govt., and developing fighting machines.
- WELLS, S. D. (X) Engr., acting in charge Pulp and Paper Sect., Forest Products Laboratory, U. S. Forest Service, Madison, Wis., developing use of wood pulp for nitro-cellulose for smokeless powder, and a filtering medium for gas masks. (Page 348.)
- WHITNEY, P. R. (I) Inst., Vocational Sect., S. A. T. C., University of Colorado, Boulder, Colo.; Supt. of construction, barracks and mess halls; Draftsman on design of a lap weld pipe mill sent to Bordeaux, France, in '17.
- WHITTEMORE, L. C. (XI) Asst. Sn. Engr., Sn. Dist. of Chicago, Ill.; Asst., Draft Registration.
- WIGGIN, A. E. (III) General Supt., Reduction Works, Anaconda Copper Mining Co., Great Falls, Mont., producing copper, zinc, and ferro-manganese.
- WILSON, W. S. (V) Chemical Engr., Merrimac Chemical Co., Everett, Mass.
- WISEMAN, J. M. (I) with Fay, Spofford & Thorndike on Boston Army Supply Base.
- WOODBIDGE, R. G., JR. (V) Rifle Powder Expert, Staff Organization, Carney's Point Plant of E. I. du Pont de Nemours & Co., '15-'16; Div. Head, Black and Smokeless Powder Div., Experimental Station, du Pont Co., Wilmington, Del.; Co-inventor of process of mfr. of improved military rifle powder.

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- ANGUS, R. A. (II) Engr., Westinghouse, Church, Kerr & Co., Inc., New York City, in charge air conditioning for fuse loading, dry kilns, heating, ventilation, and refrigeration in connection with munition plants.
- ANTHONY, R. B. (VI) Proprietor, E. A. Wilcox Manufacturing Co., Chicago, Ill., working partly on direct govt. work.
- BABCOCK, MABEL K. (IV) Director of Agricultural Courses, Lowthrop School, Groton, Mass., training supervisors for units of women agricultural workers; Member, State Comm. on Women in Agriculture in Mass.; Member, Central Comm., M. I. T. War Service Auxiliary. (Page 62.)
- BANGS, C. H. (II) Asst. to Head of Supply Div., U. S. Shipping Bd., Emergency Fleet Corp., developing organization and methods for the storage and distribution of materials.
- BATSFORD, H. E. (X) Research Chemical Engr., Solvay Process Co., Syracuse, N. Y., conducting experimental work in development of dyes.

REGISTER OF CIVILIAN RECORDS

- BEEDE, E. J. (II) connected with U. S. Dept. of Justice, Bu. of Investigation.
- BELCHER, F. K. (II) Supt. of Cons., Steel Steam Trawlers for Bay State Fishing Co. of Boston, Mass., 20 Oct. '15—1 Oct. '17. Steel Ship Cons. for U. S. Shipping Bd., Emergency Fleet Corp.: Asst. Dist. Chief Inspector, Baltimore, Md., 1 Oct. '17—1 Jan. '18; Inspector in charge, Pusey Jones Co., Wilmington, Del., 1 Jan. '18—1 Nov. '18; Inspector in charge, Cramp's Shipyard, Philadelphia, Pa., 1 Nov. '18—1 June '19; Asst. Dist. Chief Inspector, Delaware River Dist., Philadelphia, Pa., 1 June '19. Work included supervision of actual cons. work of steel ships, approval of plans, supervision over entire operation of yards and signature of all vouchers covering govt. expenditures on plant construction.
- BELCHER, G. M. (I) Industrial Engr., U. S. Rubber Co., Goodyer Metal Rubber Shoe Co., Naugatuck, Conn., Aug. '15—Oct. '17; Employment Mgr., W. H. McElwain Co., Manchester, N. H., mfg. shoes for the Govt., since Oct. '17.
- BIRD, V. E. (VI) Mgr., Conn. Power Co., supplying gas and electricity to the naval bases and munition factories at New London, Conn., and to war industries in the Naugatuck Valley.
- BLACKBURN, H. W. (II) Inst., Auto-mechanics Sect., Mechanical School, University of Vt., 15 May—31 Dec. '18.
- BOWMAN, DONALD (VI) Engr. of Apparatus and Materials, Commonwealth Edison Co., Chicago, Ill.
- BOYLSTON, C. H. (I) Supt. of Cons., Alabama Power Co., Birmingham, Ala., contractors for 30,000 k.w. steam plant for Nitrate Div., Ord. Dept., in connection with Nitrate Plant No. 2 at Muscle Shoals, Ala.
- BROOKS, J. C. (II) Asst. to Vice-Pres., Goodell-Pratt Co., Greenfield, Mass., on govt. contracts.
- BULLARD, BENJAMIN (VI) Electrical Engr., Savannah Elec. Co., Savannah, Ga., furnishing power and railway extension to companies with war contracts.
- CAIRNS, DOUGLAS (VI) Dist. Mgr., Motor Dept., Holtzer-Cabot Electric Co., electrical engr. work in connection with the Navy Dept. on the gyroscopic compass and submarine signal, and with Medical Dept. on X-ray apparatus.
- CALDER, H. W. (VI) Publicity Engr., Poole Engineering & Machine Co., Baltimore, Md., Apr. '17—July '18; Sales Mgr., Turbo Gear Dept., Aug. '18—Apr. '19.
- CALDWELL, W. E. (II) Chief Engr., W. E. Caldwell Co., Louisville, Ky., designing and constructing wood and steel tanks and towers for powder works, nitrate works and shipbuilding plants.
- CALLAWAY, H. R. (II) Head of Progress Sect., Ord. Dept., War Dept., May '18—Aug. '18. Special Q. M. representative in France and Germany, spring '19. See Military Record.
- CAREY, F. V. (I) (II) with Fay, Spofford & Thorndike on Boston Army Supply Base.
- CHILD, HUNTLEY (III) Head, Baking Div., U. S. Food Adm., Washington, D. C., in charge of rules for commercial bakers, Sept. '17—Aug. '18. See Military Record.
- CHURCH, E. S. (II) Engr., Motor Transportation Dept., Equipment Div., Aviation Sect., Sig. C., 10 Dec. 17—22 Jan. '18. See Military Record.
- CLAPP, C. S. (IV) with Aberthaw Cons. Co., Boston, Mass.
- CLARK, C. W. (X) Supt., Bowker Insecticide Co., Everett, Mass., mfg. insecticide for protection of food supply.
- COFFIN, LANGDON (II) Purchasing Agent, Samson Cordage Co., Boston, Mass., producing silk lacing cord for cartridge bags for Navy Dept., barrack bag cord, lanyards and rope for Navy Dept. and Marine Corps.
- COLE, H. A., JR. (II) Outside Plant Engr., War Service Comm., New England Telephone & Telegraph Co., Boston, Mass. providing service to various lighthouses and coast-guard stations; installation of complete telephone exchange at Camp Devens, Mass., and Ft. Ethan Allen, Vt.
- COLSON, C. S. (I) Engr., U. S. Geological Survey, Dept. of Interior, assisting Fuel Adm., in advisory capacity.
- COOK, A. M. (I) with Stone & Webster, handling executive matters in the following contracts: Rock Island Arsenal, Rock Island, Ill., American Ord. Base in France, Picric Acid Plant, Grand Rapids, Mich., Hog Island, Pa., and Camp Travis, San Antonio, Texas.
- COYE, J. S. (V) Chief Chemist, Iowa State Engineering Experiment Station co-operating with the C. W. S. by carrying on research work in connection with the mfr. of a gas for trench warfare.
- DE VEYRA, M. P. (I) Chief, Orders and Regulations, G. H. Q., National Guard, Philippine Islands; Off. Sch., Ft. William McKinley, Pasig, P. I.; Co. O., Co. F, 6th Inf., National Guard; Aide to Commanding General, 2d Brig., 1st Div., Philippine Guard, U. S. A. See Military Record.
- DOUGLASS, A. S. (I) Production Engr., British War Mission, New York City, Sept. '15—July '17. See Military Record.
- ELLIS, L. B. (I) Chief Engr., and Works Mgr., Lockwood, Greene & Co., Project Engrs., Div. of Transportation and Housing, U. S. Shipping Bd., Emergency Fleet Corp.; supervised cons. of village of fifteen hundred houses for housing shipbuilders at Camden, N. J.
- ELLSWORTH, J. T. (III) Supt., Electrolytic Zinc Plant, Judge Mining & Smelting Co., Park City, Utah.
- ELTON, H. C. (I) Asst. Engr. and Chief Draftsman, U. S. Housing Corp., Project 102, Bridgeport, Conn. See Military Record.
- ESTEN, P. A. (V) Sgt., Co. B, 13th Regt., Mass. State Guard, 19 June '17—'19. See Military Record.

TECHNOLOGY'S WAR RECORD

- FERRIS, R. W. (I) Sec., Washington office, Technology Clubs Associated, in charge of Information Bu. for Alumni Comm. for National Service; Dist. Vocational Officer, Federal Bd. for Vocational Education, at Atlanta, Ga., in charge of rehabilitation work for crippled soldiers and sailors in Dist. No. 5 of Federal Bd., including Ga., N. C., S. C., Fla. and Tenn. (Page 66.)
- GARDNER, A. L. (X) Asst. Supt., New England Manufacturing Co., North Woburn, Mass., mfg. chemicals.
- GOODMAN, L. S. (VI) Executive Asst., American International Shipbuilding Corp., Hog Island, Pa. (Page 591.)
- GRIMES, W. F., JR. (VI) Junior Engr., Fortification Div., Dist. Engineer Office, Corps of Engrs., Balboa Heights, C. Z., in charge of design and maintenance of Pacific fortifications of Panama Canal.
- GRISWOLD, H. W. (I) Supt., Carroll Electric Co., Norfolk Navy Yard, Portsmouth, Va., building concrete pipe tunnels, etc., Dec. '17—May '18.
- GUILFORD, I. M. (II) Sec. and General Supt., Ball & Socket Manufacturing Co., West Cheshire, Conn., mfg. army and navy buttons; Local Food Director; Chairman, Home Service Sect., Red Cross; Community Labor Bd.; Military Census taker; Capt., fourth and fifth Liberty Loan Drives.
- HALE, J. E. (II) designed gas masks for Govt. (Page 400.)
- HALE, P. J. (I) Resident Engr. on Cons., Freyn, Brassert & Co., Chicago, Ill., constructing blast furnaces at Mark Manufacturing Co., Indiana Harbor, Ind., and Weirton, West Va.
- HALL, SHERWOOD, JR. (II) Riveter, Boston Navy Yard; acted as Asst. Shop Supt., Hull Div., speeding up production in Rope Walk and other shops and as Fire Inspector, inspecting fire apparatus and installing new signal systems.
- HANDY, P. L. (VI) general supervision of fire protection in factories and warehouses.
- HAYES, M. C. (VI) Plant Mgr., Titanium Pigment Co., Niagara Falls, N. Y., mfg. war chemicals, principally sulphuric acid and titanium chloride for Ord. Dept.
- HAZARD, A. E. (III) Night Station Clerk and Freight Dispatcher, Eastern Mass. Street Ry. Co., at Brockton, Mass.
- HEATH, A. W. (I) Asst. Purchasing Agent, Watertown Arsenal, Watertown, Mass., Ord. Dept., engaged in procurement of tools, machines and material for mfrn. of heavy ordnance. (Page 262.)
- HOLLENDER, C. E. (I) with Stone & Webster, Contractors and Builders of Camp Travis, Kelly Field, and Camp Jolin Wise at San Antonio, Texas, in charge of purchases.
- HOWLAND, H. H. (I) Senior City Engr., Interstate Commerce Comm. on Federal valuation of railroads.
- HUNTER, W. B. (II) Owner and Mgr., Industrial Machine Works, Fitchburg, Mass., mfg. airplane bolts, and gun parts.
- JENNINGS, O. S. (VI) Chief Engr., Krantz Manufacturing Co., Brooklyn, N. Y., subsidiary company of Westinghouse Electric & Manufacturing Co.; designed switchboards, panelboards and switches, both live face and full safety.
- JOHNSTON, W. A., JR. (VIII) Production Engr., Miller Rubber Co., Akron, Ohio.
- KEDY, S. F. (II) Inspector of Steam Plants, Fuel Adm., Oswego Co., N. Y.
- KENISTON, C. W. (III) Chem. Engr., Nitrate Div., Ord. Dept.; in charge of Progress and Efficiency, Chemical Production of U. S. Nitrate Plant No. 1, Sheffield, Ala., Feb. '18; Asst. Engr., constructing and installing equipment and starting production of ammonia gas and ammonium nitrate, Air Nitrates Corp., U. S. Nitrate Plant No. 2, Muscle Shoals, Ala., Sept. '18—Feb. '19.
- KENNISON, K. R. (II) Supervising Engr., Bu. of Yards and Docks, Navy Dept., at East Cambridge, Mass., in charge of cons. of extension of pump works, Jan.—June '18; Supervising Plant Engr., Mobile, Ala., July '18; and Asst. Dist. Plant Engr., at Baltimore, and New Orleans, in charge of cons. of shipyards, plants and dry docks, U. S. Shipping Bd., Emergency Fleet Corp.
- KILBURN, E. E. (VI) Asst. General Mgr., Tide Water Power Co., Wilmington, N. C., in charge of additions to and operation of power plant, railway and transmission line to supply power and transportation to two shipyards built and operated by the U. S. Shipping Bd., Emergency Fleet Corp., at Wilmington.
- LEES, G. C. (II) Sec. and Works Mgr., North American Motors Co., Pottstown, Pa., producing ammunition metal components, high explosive shell and engines for automobile trucks.
- LESLIE, B. S. (II) Asst. to Vice-Pres., in charge of mfg., United Shoe Machinery Corp., Beverly, Mass., assisting in executive work in connection with the production of machines and shoe supplies. Attended Plattsburg, '15.
- LOCKE, J. H. (VIII) Asst. to General Mgr., Commonwealth Steel Co., Granite City, Ill., producing parts for tractors, and railway equipment. See Military Record.
- LOEB, LEO (II) Engr., Day & Zimmerman, Inc., in charge design and cons. power plant, heating system, water supply and fire protection for U. S. Q. M. Terminal and Supply Base, Philadelphia, Pa.; 3000 k. w. turbo-generator plant, boilers and auxiliaries for Virginia Shipbuilding Corp., U. S. Shipping Bd., Alexandria, Va.
- LONGLEY, A. A. (II) Fire Prevention Engr., Factory Mutual Fire Insurance Cos., safeguarding munition factories from fire in Chicago Dist.
- LYFORD, E. F. (V) Chief Chemist, Aetna Chemical Co., Drummondsville, P. Q., Canada, making smokeless powder for Allies; Technical Adviser for Kirkman & Son, connected with production of glycerine; Assoc. Member, Legal Advisory Bd., City and State of New York; Member of Liberty Loan Comm. of New York City.

REGISTER OF CIVILIAN RECORDS

- MACK, H. V. (II) Asst. Supt., Boston Army Supply Base, for Wm. F. Kearns Co., Boston, Mass.
- MACKAY, G. M. J. (V) Research Engr., General Electric Co., Schenectady, N. Y.; U. S. Naval Experiment Station, Nahant Group; U. S. Ord. Dept., Nitrates Div.; experimental, inspection and instruction work on submarine detection devices; research work on fixation of nitrogen.
- MAXWELL, D. H. (XI) Resident Asst. Engr. with Supervising Engr. on water works and sewers, Camp Grant, Ill., '17-'18; Office and Field Engr. with Supervising Engr., Camp Las Casas, Porto Rico, supervising cons. of water works and sewers, '18.
- MAYO, LINCOLN (II) Asst. Purchasing Agent, Naval Aircraft Factory Branch, Murray & Tregurtha Co., Atlantic, Mass., building hulls for flying boats of the F-5-L Model.
- MERRILL, A. C. (II) Asst. Supervisor of one of the powder lines, Carney's Point Works, Smokeless Div., E. I. du Pont de Nemours Co. (Page 358.)
- MILNE, W. D. (I) Engr., Fire Prevention Sect., War Industries Bd., May—Nov. '18.
- MORELAND, E. L. (VI) with the Technical Board, Office of the Chief Purchasing Agent, A. E. F. Worked with Col. D. C. Jackson in gathering supplies of electrical material for the A. E. F. (Page 220.)
- MORRIS, W. A. (I) Pilot Engr., Pennsylvania R.R., Lines West of Pittsburgh, in charge of valuation of all lands along Pennsylvania Lines West and affiliated lines.
- MOTT, F. E. (V) Chemist, Boston Health Dept., working on foods and drugs.
- MURRAY, J. F. (IV) Progress Engr., later Supt. of Cons., Cons. Div., U. S. A., 9 Sept. '18; Lakehurst, N. J., 9 Nov., making progress maps, and surveys, cost reports, and finally in charge of sale of camp; Eagle Pass, Texas, on the Mexican Border Project, May '19.
- MYERS, ELEAZER (X) Factory Mgr., Columbia Mills, Inc., Minnetonka, N. Y., mfg. surgical dressings for Govt.
- NICHOLS, J. R. (V) Night Supervisor, later Chemist, Atlas Powder Co., Landing, N. Y., mfg. nitric, sulphuric acid and mixed acids for explosives.
- NORTON, P. W. (IV) Inst., Architectural Engineering, M. I. T., and Inst., S. A. T. C., M. I. T. (Page 27.)
- PFEIL, W. G. (II) Mech. Engr. in charge of General Repair Shops, Botany Worsted Mills, Passaic, N. J., mfg. army and navy fabrics.
- PICKERING, H. B. (VI) Asst. Engr. in delta laboratory at Arlington, N. J. (Page 360.)
- PITKIN, C. L. (IV) Architectural Draftsman, Cons. Div., War Dept., Washington, D. C.; Shipper, Metropolitan Chapter, Red Cross, Boston, Mass.
- PLACE, A. G. (VI) Electrical Engr., Youngstown Sheet & Tube Co., Youngstown, Ohio.
- PLUMER, E. A. (VI) Engr., American Telephone & Telegraph Co., New York City; during War, Commercial Engr. in Colorado, Utah and on Pacific Coast.
- POPE, JOSEPH (XIII) Mechanical Engr., with Stone & Webster, in connection with the design of shipyard, shops, compressed air plant, cranes, pumping plants and tool equipment, American International Shipbuilding Corp., Hog Island, Pa. (Page 391.)
- PUTNAM, C. D. (I) Engr. on cons. work, Wilbur Wright Field, Dayton, Ohio; Camp Sherman, Ohio.
- REYBURN, J. R. (II) Cons. Engr., Production Engr., American Chain Co. of Virginia, Norfolk, Va., mfg. steel link ships cable for U. S. Shipping Bd., Emergency Fleet Corp.
- RILEY, E. J. (VI) Member, American Protective League, Chicago, Ill., making special investigations for Dept. of Justice.
- RIPLEY, R. I. (I) Accountant, Recruiting Service, U. S. Shipping Bd.; helped organize and systematize Recruiting Service of U. S. Shipping Bd.; Scout Executive of Lowell (Mass.) Boy Scouts of America.
- ROCKWELL, W. F. (V) (VI) Vice-Pres., The Torbensen Axle Co., Cleveland, Ohio, in charge of engineering and mfg.; was consulted on design of military truck and tractor axles; built several hundred axles for special war jobs.
- RUGGLES, H. J. (I) with Bu. of Yards and Docks, Navy Dept., Washington, D. C.
- SAMPSON, MILES (II) Chairman, Clark Mills (N. Y.) Red Cross Branch.
- SANDO, J. B. (II) Mech. Engr., Aircraft Sect., Engr. Div., Ord. Dept., War Dept., Washington, D. C., engaged in designing fragmentation drop bombs for airplanes.
- SARGENT, H. S. (I) Mech. Designer, Submarine Signal Co., Boston, Mass., mfg. logs for submarines and battle-ships for Govt. and adapting an English-designed log to American mfg. methods.
- SCANNELL, A. T. (II) Pres., Archer Iron Works, Chicago, Ill., mfg. parts for govt. tanks and special equipment for shell plants.
- SCHIRMER, R. E. (VIII) General Mgr., The Argo Reduction & Ore Purchasing Co., producing lead, copper, gold, and silver; Dist. Vice-Chairman, Liberty Loan Comm.; Chairman, Dist. Council of Defense, Denver, Colo.
- SCHOBINGER, GEORGE (I) Asst. Progress Engr. in cons. of Hog Island Shipyard, Nov. '17; in charge of Yard Progress Dept., May '18; in charge of Ship Construction Progress Dept., American International Shipbuilding Corp., Hog Island, Pa., from Sept. '18. (Page 391.)

TECHNOLOGY'S WAR RECORD

- SEWELL, H. R. (II) Power Apparatus Dept., B. F. Sturtevant Co., Boston, Mass., producing engine and induced draft equipment for Emergency Fleet Ships.
- SHAPLEIGH, C. H. (I) Engr. Draftsman, Bu. of Yards and Docks, Navy Dept., Washington, D. C.; applied for commission, Engr. Corps but refused on account of poor eyesight.
- SLACK, E. P. (VI) Chief Inspector, New York office, Underwriters' Laboratories, supervising inspection of munitions.
- SLOSS, A. C., JR. (VI) Chief Clerk and Office Mgr., Grand Rapids (Mich.) Ord. Office, Ord. Dept.
- SPENGLER, W. D. (VI) Supt. of Building Erection, American International Shipbuilding Corp., Hog Island, Pa.; Chief Engr. of Cons., for The Foundation Co. of New York, building a water supply system, power plant, and chlorine plant at Edgewood Arsenal, Edgewood, Md.
- STEWART, J. B., JR. (I) Asst. General Mgr., Mahoning & Shenango Railway and Light Co., Youngstown, Ohio, furnishing electric light and power and street railway transportation, artificial gas and steam heat to communities in the Youngstown Dist. (Iron and Steel Institute Dist.); Capt., American Protective League.
- SUTTON, L. H. (XIII) Lawyer with Mauro, Cameron, Lewis & Massie, representatives of French firm of Schneider & Cie., of Creusot, before the Patent Office and War Dept. in prosecuting applications for patents and making contracts for use of inventions relating to artillery and other munitions of war.
- SWEENEY, H. P. (III) Supt., Ft. Montgomery Iron Corp., Fort Montgomery, Md., mining and producing iron ore.
- TAYLOR, W. C. (V) Chemist, Corning Glass Works, Corning, N. Y., working on development of special technical glasses, especially color filters and optical glass, and also on control of regular technical production of chemical glassware, railroad signal ware, thermometers, X-ray shields, bulbs, tubing and miscellaneous ware.
- TULLY, E. J. (VII) State Sn. Engr., State of Wisconsin, in charge of sanitary engr. matters in connection with govt. plants and camps.
- WARREN, E. L. (VI) Special Asst., Organization of Shoe and Leather Sect., Clothing and Equipment Div., and Hardware and Metals Div., Q. M. C., Washington, D. C.; Production Mgr., Stanley Rule & Level Co., New Britain, Conn., mfg. tools for War and Navy Depts., Shipping Bd., Aircraft Bd., and other govt. agencies.
- WATERS, E. J. H. (I) Sub-Agent in charge, Sir John Jackson, Ltd., War Dept., England, building camps; Asst. Engr., Birmingham Metal & Munitions Co., turning out .303 cartridges and various shell cases for British Govt.
- WATTLES, J. W., 3d (II) Commercial Engr. for Sales Dept., The Edison Electric Illuminating Co. of Boston., endeavoring to centralize source of factory power, to conserve coal and relieve railroads and shipping of heavy tonnage.
- WEBB, HARRY (III) Member, American Protective League, Memphis, Tenn.; Scout Master, and active in all Scout activities connected with the war.
- WEEKS, A. T. (II) Chief Clerk, Purchasing Dept. (Cessions Office), American A. S. Hq., Paris, 1 Nov. '17—1 Nov. '18, placing all orders for airplanes and equipment obtained from the French Govt., and obtaining delivery. See Military Record.
- WEILER, R. B. (II) Inspector and Member, U. S. Fuel Adm., Chester Co., Pa.
- WELCH, G. W. (VI) General Supt., South Dakota Light & Power Co., Armour, S. D., in charge of central station serving ten towns; Rebuilt plant equipment.
- WEMPLE, L. E. (V) Mgr., Oxide Dept., and Metallurgist, American Zinc, Lead & Smelting Co., St. Louis, Mo.; invented new process of mfg. pigment zinc oxide; developed commercial operations and supplied Govt. and sub-contractors with this material for paint and rubber products.
- WHITMORE, C. W. (I) Engr., Riverside Boiler Works, Cambridge, Mass., mfg. steel tanks for destroyers and other navy vessels, exhaust heaters for submarine engines, mines and steel tanks for Army.
- WINCH, A. C. (II) Member, Framingham Public Safety Comm.
- WINT, R. W. G. (V) Asst. Material Engr., Bu. Cons. and Repair, Navy Dept., Washington, D. C., in charge of specifications and tests of ferrous metals.
- YORK, W. C. (I) Resident Engr., New England Power Co., Worcester, Mass., building high tension transmission lines for the Govt.

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- ADAMS, E. Q. (X) Organic and Physical Chemist, Color Laboratory, Dept. of Agriculture, Washington, D. C., studying absorption of chlorine by charcoal, synthesis of photosensitizing dyes for Bu. of Aircraft Production, and designing apparatus for mfr. phthalic anhydride.
- ALMY, E. T., JR. (III) Cons. Engr., Sinclair Refining Co., Chicago, Ill., furnishing Govt. with petroleum products; Resident Engr., in charge of cons. of new refinery, Kansas City, Kan., Jan. '17; Cons. Engr., on new refinery, East Chicago, Ind., Mch. '18. See Military Record.
- AYRES, R. S. (II) Industrial Engr. and Supt., Rice & Hutchins, Inc., Cambridge, Mass., mfg. civil and military footwear.
- BARNES, A. J. (VI) Supt. of Traffic, Maritime Telephone & Telegraph Co., Halifax, N. S., in touch with the Intelligence Dept. of the Militia, regarding the regulation and censorship of telephone messages.

REGISTER OF CIVILIAN RECORDS

- BATCHELDER, C. L. (I) Asst. Engr., Water Resources Branch, U. S. Geological Survey, Dept. of the Interior, Portland, Ore., investigating water resources for power and irrigation purposes.
- BELCHER, DANIEL (II) Engr., in charge of engineering and employment activities, Bemis Brothers Bag Co., St. Louis, Mo., mfg. food containers for A. E. F.
- BENNETT, H. H. (III) Ship Carpenter's Helper, Receiving Clerk, and later Asst. Employment Mgr., Traylor Shipbuilding Corp., Emergency Fleet Corp., Cornwells, Pa.
- BOWMAN, B. A. (I) Div. Engr. in charge of Superstructure Div., Fay, Spofford & Thorndike, Boston Army Base.
- BOYCE, J. N. (II) Draftsman, later Chief Draftsman in charge Drafting Dept., Goodyear Tire & Rubber Co., designing gas masks, airplane tires and wheel rims.
- BROOKS, J. N. (I) 1st Asst. Engr., Hill & Ferguson, Supervising Engrs. on Camp Merritt, N. J.; Designing Engr., on three housing developments for U. S. Housing Corp., near Norfolk, Va.
- BROWN, C. J. (IV) Supt. of Instructors, Aviation School for War Dept., until it was taken over by the Govt.; Supt., Erection of Barracks, Dunwoody Institute, for War Dept.
- BRUSH, G. S. (II) Supt. of Transportation, Springfield Street Ry., Springfield, Mass.; General Supt., Houston Electric Co., Houston, Texas, Oct. '18.
- BULLENS, D. K. (III) Consulting Metallurgist, Rogersford, Pa., Ord. and Shipbuilding work for Govt.
- BURGHES, S. L. (VI) Engr. for National Bd. of Fire Underwriters, U. S. Shipping Bd., Emergency Fleet Corp. laying out improved fire protection for shipyards and hospitals in New England, mostly in Maine.
- CAMPBELL, C. L. (X) Chem. Engr., E. B. Badger & Sons Co., Boston, Mass., working on construction on munition plants. (Page 398.)
- CHAPMAN, E. P. (III) Asst. Supt., Pueblo Plant, American Smelting & Refining Co., transferred to Leadville, Colo., Mch. '18; producing gold, silver, lead, and copper for Govt.
- CHASE, P. H. (VI) Chief Electrical Engr., The American Railways Corp., Philadelphia, Pa., in general charge of electrical design, cons. and operation of power stations; Member, Sub-Comm., Standards Comm., American Institute of Electrical Engrs., co-operating with Navy Dept.
- CHRISTIE, J. A. (V) Factory Supt., Swinehart Tire & Rubber Co., Akron, Ohio, in charge of production of govt. material.
- CLARK, H. L. (I) Supt. of Engr. and Cons. at the mine, Chile Exploration Co., Chuquicamata, Chile. S. A., producing copper.
- CLIFFORD, W. W. (I) Structural Engr., Monks & Johnson, Boston, Mass., working on design of Victory Plant of Bethlehem Shipbuilding Corp., at Squantum, Mass.; Structural Engr., Harry M. Hope Engineering Co., Boston, Mass., on power station design.
- CONGDON, H. W. (I) Structural Engr., Providence Steel & Iron Co., mfg. structural steel for war industries, and ship fittings for Emergency Fleet Corp.
- CRAWFORD, C. H. (I) Member, Storage Comm., Council of National Defense, Washington, D. C., 15 Nov. '17—Mch. '18, handling traffic organization, storage, and routing. See Military Record and page 309.
- CRITCHETT, J. H. (XIV) Asst. Metallurgist, Union Carbide Co., and Electro-Metallurgical Co., Niagara Falls, N. Y., supervising production of war materials and developing new products; worked on determination and mfr. of best quality of ferro-silicon for hydrogen generation for balloon inflation at field stations; developed methods for mfg. zirconium alloys; made possible mfr. of lighter and stronger armor plate for tanks.
- DAVIS, M. M. (VI) volunteered for service at Fort Monroe, Va., but refused because of physical disability.
- DEAN, J. S. (IV) Asst. State Architect, Sacramento, Calif., refused commission in Engrs. on account of eyesight.
- DESMOND, T. C. (I) Pres., Newburgh Shipyards Inc., building ten 9,000-ton steel merchant ships for Emergency Fleet Corp.; organized a regiment of nearly 3,000 Engrs. for the proposed Roosevelt Volunteer Div. (Page 391.)
- DEWEY, BRADLEY (X) Research Organization, Bu. of Mines, Washington, D. C., working on war gases, Mch. '17; in charge of furnishing 25,000 gas masks, May '17. See Military Record and pages 139 and 253.
- DOANE, R. E. (VI) Sales Engr., Standard Underground Cable Co., Pittsburgh, Pa., supplying electrical wire and cables to the A. E. F. and to war industries. (Page 404.)
- DORT, J. C. (I) Asst. and Acting Dist. Engr., Dist. No. 5 (Calif.), U. S. Forest Service, Dept. of Agriculture, 1 Aug. '18—7 Jan. '19.
- DOW, B. W. (II) Industrial Engr., The Elbert Clarke Co., and Eastman Kodak Co., Rochester, N. Y., producing cartridge cases, army overcoats, saddles, and optical gun sights and instruments.
- DuBOIS, W. L. (VI) Electrical Draftsman, Trade Test Comm., Camp Dix, N. J., selecting men from draft to enter essential industries; transferred to Hog Island Shipyard, American International Shipbuilding Corp., installing electrical equipment on cargo and troop ships and in shops and ways. (Page 391.)
- DURGIN, M. F. (VI) Tester, Holtzer-Cabot Electric Co., Boston, Mass., mfg. generators and sets for Navy and for Emergency Fleet Corp.
- EARLY, F. H. (XIII) Naval Architect, U. S. Shipping Bd., Cleveland, Ohio, in charge of calculations of work on Steamer Van Hise, also of surveys on Welland Canal. (Page 333.)
- EATON, H. I. (XI) Consulting Expert, U. S. Public Health Service, on extra-territorial cantonment work for elimination of malaria; Pres. and Mgr., Eaton, Brown & Simpson, Inc., New York City, constructors, Naval Training Station, Cape May, N. J.

TECHNOLOGY'S WAR RECORD

- EDDY, L. C. (VI) invented and patented paravane for detecting and paralyzing deep sea mines. See Military Record.
- *ELBERT, J. J. (X) Supt., Warners (N. J.) Plant, American Cyanide Co., and Operating Supt., Air Nitrates Corp., mfg. aqua ammonia from cyanide at N. J. and mfg. ammonium nitrate synthetically by the cyanide process at Muscle Shoals; assisted in design and engr. of U. S. Nitrate Plants 2, 3, and 4 at Muscle Shoals, Ala., Toledo, and Cincinnati, Ohio; Supt., Nitrate Div., at Muscle Shoals plant during operation. Died, 27 Feb. '20.
- FAULKNER, F. R. (I) Designer, Fay, Spofford & Thorndike, on Boston Army Supply Base.
- FISHER, H. C. (II) Consulting Engr., Design and Construction Mgr., Sayles Finishing Plants, River Spinning Cos., French River Textile Co., Hamlet Textile Co. and Central Construction Co., Pawtucket, R. I., mfg. cotton materials for war purposes.
- FULLER, B. R. (I) Efficiency Engr., Cons., Dept., Tallassee Power Co., Badin, N. C., testing materials for construction of dams and power house, '17; in charge of Aluminum Plant, controlling materials and mfg. pig aluminum for airplane and automobile parts, Liberty motors and mess kits, May '18.
- GADSBY, G. M. (V) Asst. Mgr., American Water Works & Electric Co., Camp Pike, Little Rock, Ark., planning and installing water supply system; Asst. to Pres. and Vice-Pres., West Penn. Power Co., Pittsburgh, Pa., supplying power to coal mines and mills, 1 Nov. '17; during summer '18, under direction of Power Sect., War Industries Bd.
- GAMMONS, C. W. (VI) Industrial Control Engr., General Electric Co., Schenectady, N. Y., designing automatic controllers.
- GILBERT, R. W. (XI) Washington Representative, Stone & Webster, in charge of relations with War Dept. on all govt. work of the firm; built Powder Loading Plant, Woodbury, N. J.
- GILMAN, W. F. (VI) General Supt., Central Illinois Public Service Co., Springfield, Ill.; Chairman, Beardstown Red Cross Drives.
- GLANCY, R. C. (VI) Cons. Engr., Philadelphia Div., Bell Telephone Co., in charge of plans for cable plant for private branch telephone exchanges at Camp Dix, Hog Island, and shipyards near Philadelphia; Plant Engr., Harrisburg Div., 1 Mch. '18, with general supervision of plans for telephone plant at Aviation and Ord. Depots, Middletown, Pa., and Ord. Depots, Marsh Run and Tobyhanna, Pa., and Carlisle Hospital, Carlisle, Pa.
- GODFREY, K. D. (VI) Engr., Edison Electric Illuminating Co., Boston, Mass., working on high tension lines to arsenals and shipbuilding plants around Boston. Volunteered for service in Sig. and Engr. Corps, notified to remain with company.
- GRAM, C. W. (X) Engr., E. B. Badger & Sons Co., Boston, Mass., mfg. alcohol-ether equipment, acetic acid, acetone, and wood distillation plants for mfg. explosives, and equipment for Navy Yards and 1 Emergency Fleet Corp. (Page 398.)
- GROSS, MRS. CORA BURT (V) Worker for Technology Work Rooms; Worker, Red Cross, Surgical Dressings Comm., War Camp Community Service and M. I. T. War Service Auxiliary.
- HARRIS, NATHAN (I) Civil Engr., Merchant Shipbuilding Corp., Bristol, Pa.; Civil Engr. and Inspector, Q. M. Terminal, Philadelphia, Pa., with Day & Zimmerman, Inc.
- HARTSHORN, D. S. (II) General Supt., Isaac Varney & Sons Co., and North Berwick Box Co., Berwick, Me., mfg. cartridge, hand grenade, and bayonet boxes, also Berwick spacer blocks for holding shells in cases.
- HAYNES, H. W. (V) Asst. Chemist, U. S. Bu. of Chemistry, Food and Drug Inspection Laboratory, Boston, Mass., analyzing samples of condensed milk, canned salmon, soap, chocolate, and cocoa for War Dept.
- HEALY, L. J. D. (V) Chief Chemist and Technical Supervisor of Production, Federal Rubber Co., Cudahy, Wis., in charge of development of gas masks, gas apparatus parts, grenade cups and washers, recoil parts for guns and howitzers, and airplane accessories.
- HENDERSON, A. B. (I) Engr., Field Office Drafting Room, Hill & Ferguson, Consulting Engrs., Camp Merritt, N. J., '17; Field Inspector, Monks & Johnson, Engrs., on construction of submarine destroyer plant, Squantum, Mass., '18; Engr., Fay, Spofford & Thorndike, on construction of Boston Army Supply Base, Mch. '18—May '19.
- HERSEY, M. D. (II) Physicist, Aeronautic Instruments Sect., Bu. of Standards, Washington, D. C.; organized this sect. in May '17; Member, Special Mission, abroad, Aug. '18; Member, Sub-Comm. of International Aircraft Standards Bd. and National Advisory Comm. for Aeronautics.
- HICKERSON, T. F. (I) Capt. and Asst. Director, University of North Carolina Summer Camp, Asheville, S. C.
- HOYT, R. N. (VII) State District Health-Officer and Extra-Cantonment Officer, San Francisco and South California State Bd. of Health, '17. See Military Record.
- HUBBARD, C. W. (II) 2d Vice-Pres., Fuel Engineering Co. of New York, assisting factories making war materials to keep power plants going in spite of poor fuel.
- HULSIZER, R. I. (VI) Patent Attorney, Western Electric Co., Inc., New York City; worked in Washington and Chicago on patents for vacuum tubes and speech transmission apparatus.
- HUNT, F. L. (VIII) Associate Physicist and Acting Chief, Aeronautic Instruments Sect., Bu. of Standards, Washington, D. C., in charge of the investigation and testing of aeronautic instruments, '17.
- HUTCHINSON, B. E. (III) Treas., American Writing Paper Co., Holyoke, Mass., mfg. paper products for govt. orders.

REGISTER OF CIVILIAN RECORDS

- JACOBY, LOUIS (VI) Mgr., Dallas (Texas.) Office, Westinghouse Electric & Mfg. Co., in charge of engr., commercial and service relations between Westinghouse Co. and Southern Power Co. in completing the Bridge-water, N. C., and Wateree, S. C., hydro-electric developments.
- JAEGER, FREDERICK (III) Chemist, American Smelting & Refining Co., and Nichols Copper Co., doing analytical and experimental work in chemical and metallurgical lines on copper, lead, and tin.
- JARRETT, H. H. (II) Paymaster (Civilian), in charge of Reimbursement and Pay Dept., New York Dist. Office, Bu. of Aircraft Production; in charge of Inventory and Appraisal Personnel, Nov. '18—6 June '19.
- JOHNSON, C. A. (IV) Architect, with Cass Gilbert, New York; Asst. Executive, Brooklyn Army Supply Base, in charge of development of drawings. (Pages 322 and 391.)
- JOHNSON, L. H. (VI) Section Head, Western Electric Co., Inc., New York City, in charge of engr. and shipping telephone and telegraph equipment for the A. E. F. (Page 404.)
- JONES, ALLEN (II) Purchasing Agent, and Asst. Mgr., French Brood Mfg. Co., Asheville, N. C., mfg. cotton goods for Govt.
- JONES, W. H. (II) Inst., School for Merchant Marine Engr. Officers, U. S. Shipping Bd., M. I. T. (Page 34.)
- JOSLIN, G. A. (III) Managing Engr., Ramshorn Mines Co., Salt Lake City, Utah.
- KEENEY, R. M. (III) Consulting Metallurgical Engr., Bu. of Mines, Dept. of the Interior, Washington, D. C., and Denver, Colo.; Mgr. and Consulting Engr., Iron Mountain Alloy Co., Westinghouse Electric & Mfg. Co., Anaconda Copper Mining Co., and Ferro-Alloy Co., producing ferrochrome, ferrotungsten, and ferromanganese for steel mfg.
- KELLY, W. J. (V) Chemist, Goodyear Laboratories, Goodyear Tire & Rubber Co., Akron, Ohio. (Page 400.)
- KELLOGG, A. G. (IV) Draftsman, Architectural Drafting Dept., Cons. Div., U. S. Army, Washington, D. C., '18.
- KOPPITZ, C. G. (VIII) Chief Engr., Railway & Industrial Engineering Co., Greensburg, Pa., mfg. 4-7" American H. E. shells, and gun carriage parts.
- LANG, H. L. (VII) Specialist in Food Preservation, War Emergency Food Conservation, U. S. Dept. of Agriculture, Washington, D. C., and at various places in the U. S.; in charge of bacteriological investigation of the methods used in home and community canning.
- LAUTZ, M. W. (I) Asst. Engr., Steel Sheet Piling Engr. Dept., Lackawana Steel Co., Buffalo, N. Y., designing and estimating structures using steel sheet piling.
- LAWRENCE, G. L. (I) Asst. Supt., later Supt. and Factory Mgr., Boston Rubber Shoe Co., mfg. boots and overshoes for U. S. and allied military and naval forces.
- LORD, P. B. (III) Div. Foreman, Montezuma Copper Co., Sonora, Mex., mining copper.
- LOUD, F. M. (VI) Signal Engr., Public Service Railway Co. of N. J. See Military Record.
- LUSCOMB, FLORENCE H. (IV) Govt. Speaker, Liberty Loan and W. S. S. Drives; Worker, Red Cross, Food Conservation, and Draft Registration; Member, Boston Equal Suffrage Assn. doing war work.
- McAULIFFE, W. J. (I) Purchasing Agent, W. G. Cornell Co., Sub-Contractor to F. T. Ley Co., in connection with sanitation and water supply construction at Camp Devens, Mass. See Military Record.
- McCARTHY, J. F. (I) Draftsman, Berlin Construction Co., Berlin, N. H., building munitions factory, summer, '17; Draftsman on shipyard construction work for Shipping Bd., Philadelphia, Pa., summer, '18.
- MACHEN, THOMAS (IV) Inspector and Office Asst., with Cons. Q. M., Cons. Div., Camp Meade and at Curtis Bay Ord. Depot, Md.
- MAIN, C. R. (II) Supervisor of office work with Charles T. Main, Engr., Boston, Mass., preparing plans and supervising erection of industrial plants and securing men and making estimates for Cons. Div.
- MARTIN, T. DEEV. (II) Sr. Engr., Boston Office, Underwriters' Laboratories, working on camp equipment material. See Military Record.
- MATTE, A. L. (VI) Electrical Engr., Development and Research Dept., American Telephone & Telegraph Co., New York City. Volunteered for Military Service but refused four times on physical examination.
- MATTE, JOSEPH, JR. (I) Engr. of Cons., Albert Kahn, Architect, Detroit, Mich., working on designs of U. S. Air Service Encampments, also U. S. Experimental Aircraft Stations, Dayton, Ohio, Langley Field, Va., and San Diego, Calif.
- MAYNARD, C. D. (I) Chief Cost Engr., with Stone & Webster, on addition to Watertown Arsenal, Mass., '17; Field Auditor, U. S. War Dept., Cons. Div., on Boston Army Supply Base, Boston, Temporary Warehouse and Ft. McKinley pipe line.
- MENKE, A. F. (IV) Inst. in Airplane Rigging, and in charge of instruction, Dept. of Carpentry, Cabinet Making and Propeller Repair, U. S. Army Air Service Mechanics School, St. Paul, Minn., Feb. '18.
- MERRILL, E. D. (I) Traffic Engr., Seattle Div., Puget Sound Traction Light and Power Co., Seattle, Wash., in charge of traffic to newly constructed shipyards, '17.
- MERRIMAN, T. C. (III) Metallurgical Engr., Laboratory Div., Cartridge Dept., Winchester Repeating Arms Co., New Haven, Conn., solving problems in ammunition mfg., particularly of non-ferrous metals.
- MILLARD, R. W. (II) Pres. and General Mgr., Foster Merriam & Co., Meriden, Conn., mfg. bayonet scabbards, 6" trench mortar shells, hand grenades, and gas mask parts; Chairman, Trench Mortar Shell Assn.

TECHNOLOGY'S WAR RECORD

- MILLS, JOHN (VI) trained members of Sig. C. and Navy in Radio-telephony; worked on submarine detection problem with Western Electric Co., New York City.
- MITCHELL, A. K. (XI) Sec., Lead Producers' Comm. for War Service, New York and Washington, which allotted all pig lead purchased by U. S. Govt., and later all pig lead produced in the U. S. and Mexico.
- MORRILL, A. B. (XI) Asst. Engr., Morris Knowles, Inc., Supervising Engrs., Camp Meade, Md., and Camp McClellan, Ala., making studies on water supply, spring gagings and pump layouts.
- MORRISON, G. A. (III) Mine Supt., International Nickel Co. of Canada, Ltd. (formerly Canadian Copper Co.), producing nickel and copper for use in war munitions.
- MOSES, A. L. (VI) Director of Sales, Dayton Automatic Products Co. and Muskegon Motors Specialties Co., making all cam shafts and screw machine parts for Liberty Motors.
- MUNOZ, R. F. (III) Supt., Compania de Minerales y Metales, S. A., Monterey, Mex., opening up and preparing mines for production of zinc and lead ores in Northern Mexico for shipment to U. S.
- NISBET, L. D. (I) Engr., with Aspinwall & Lincoln, Bath, Maine, and with Lockwood Green & Co., Portsmouth, N. H., under Emergency Fleet Corp.
- NORTON, A. E. (II) Sec., Advisory Engr. Comm. for Mass., and Administrative Engr. for Mass., U. S. Fuel Adm.
- O'NEILL, HAYLETT (VI) Power Plant Engr., West Virginia Pulp & Paper Co., designing and operating plants supplying power for mfr. of munitions; Special Adviser on Fuels, Submarine Defense Assn.; developed new fuels for marine work and marine protective devices.
- OTTERSON, J. E. (XIII) Vice-Pres. and General Mgr., during war, now Pres., Winchester Repeating Arms Co., New Haven, Conn., mfg. small arms and small arms ammunition; Chairman, Small Arms Comm. of Manufacture, War Industries Bd.
- PAGE, S. H. (II) Vice-Pres., Union Gas Engine Co., Oakland, Calif., designing and developing aircraft engines for U. S. N.
- PAINE, H. W. (X) Chemist and Night Supt., Nonnabo Chemical Co., East Providence, R. I., mfg. guncotton.
- PALMER, H. H. (VIII) Engr., General Electric Co., Steam Turbine Engr. Dept., testing and computing.
- PARDEE, H. S. (VI) operated a shop mfg. aerial drop bombs; developed gas engine electric generating units for military use.
- PARKER, J. W. (I) Asst. Structural Engr., with Charles T. Main, Boston, Mass., working on structural designs, specifications, and supervision of construction on various types of industrial plants for govt. work.
- PEET, A. S. (II) Sec. and Treas., Knoxville Glove Co., Knoxville, Tenn., mfg. leather-faced gloves for shipbuilders, ammunition and agricultural workers.
- PERKINS, S. F. (V) Inspector of Airplane Engines and Airplanes, later Expert Appraiser on Airplane Parts, for War Dept., Boston, Mass.
- PIERSON, RUTH O. (VII) Director of Laboratory, Bu. of Sanitation, Red Cross, Chillicothe, Ohio, Sept. '17—July '19; Red Cross Unit No. 12, serving Extra-Cantonment Zone surrounding Camp Sherman, under supervision of Public Health Service; Ex. Sec., Civilian Relief Dept., Ross Co. Chapter, Red Cross, Dec. '17—May '18.
- POROSKY, MATTHEW (VI) Chairman, Factory Management Comm.; Member of the Ex. Comm. and Head of the Planning and Efficiency Dept., The Holtzer-Cabot Electric Co., Roxbury, Mass., mfg. radio motor generator sets, gun-firing control telephones, navy switchboards, howlers, and other special radio power generating equipment for Govt.
- REEDS, CLARENCE (II) Asst. Engr., John A. Stevens, Lowell, Mass., designing and superintending installation of 30,000 k. w. power station, Turners Falls Power & Electric Co., Chicopee, Mass.
- REPPERT, G. H. (VI) Production Engr., Ord. Dept., Boston, Mass., increasing production of Ord. Contractors in New England Dist., 7 Oct. '18; settled claims on ord. contracts after the armistice.
- REW, M. W. (I) Dist. Engr., later Staff Asst., Passenger Transportation and Housing Div., U. S. Shipping Bd., Emergency Fleet Corp., covering all shipyards from Bath, Maine, to Duluth, Minn.
- ROBESON, F. L. (II) Prof. of Physics, Virginia Polytechnic Institute, Blacksburg, Va., and Inst., S. A. T. C.
- ROBINSON, C. S. (X) Chemical Engr., with E. B. Badger & Sons Co., engaged in production of ord. material, especially explosives; Asst. Prof. of Industrial Chemistry, M. I. T. and Inst., S. A. T. C.
- RODMAN, W. S. (VI) Assoc. Member, Naval Consulting Bd.; Member, Bd. of Directors for State of Virginia; Representative for Va., Divisional Lighting Comm. of Comm. on Labor, Advisory Comm., Council of National Defense; Asst. Supervisor, University of Va. Motor Truck Drivers' Training School, later Sect. B. S. A. T. C., in charge of road instruction; Lecturer on Electrical Equipment of Trucks.
- RYERSON, E. L. (I) Production work, Bu. of Aircraft Production, Washington, D. C., 10 May—15 Aug. '17. See Military Record.
- *SAVERY, R. H. (VII) Machinist, Staten Island Shipbuilding Co., shipbuilding for Navy and Emergency Fleet Corp. Died, 20 Feb. '20.
- SCHARFF, M. R. (XI) Ex. Sec., Washington Bu., Technology Clubs Associated, giving advice to Tech graduates concerning opportunities for service, and assistance to federal depts. in obtaining technical assistance; Supervising Engr., Camp McClellan, Ala., Cantonment Cons. Div., War Dept. See Military Record.

REGISTER OF CIVILIAN RECORDS

- SCHNEIDER, FRANZ, JR. (VII) with Div. of Statistics, Council of National Defense, Dec. '17—Mch. '18. See Military Record.
- SHARP, HAROLD (I) Supt. of cons. of factory building for Edison Lamp Works of General Electric Co., Boston, Mass., mfg. lamps for Govt.
- SLEEPER, D. W. (VI) Member, Advisory Bd., Boston, Mass.; Pres., Dwight W. Sleeper & Co., Inc., fire protection engineers.
- SMEATON, D. W. (III) Civil Engr., Bethlehem Shipbuilding Corp., Fore River Plant, Squantum Works, building destroyers.
- SOULE, L. R. (X) Mgr., School of Airplane Cons., Y. M. C. A., under auspices of Aero Club of Pa.
- SPENCER, H. K. (II) Asst. Mgr. and Engr., The Blanchard Machine Co., Cambridge, Mass., supplying standard machine tool known as the Blanchard High Power Vertical Surface Grinder to factories, arsenals, and navy yards in U. S. A., England, France and Japan.
- SPOONER, THOMAS (VI) Research Engr., Westinghouse Electric & Mfg. Co., Pittsburgh, Pa., working on heat treating of 4" and 6" shells and various magnetic and electrical investigations on electrical apparatus for war purposes.
- STEVENS, J. C. (I) Engr., with F. T. Ley & Co., on Picric Acid Plant, Brunswick, Ga.; Asst. Chief Time Inspector, Cons. Q. M. C., Camp Jackson, S. C.
- STEWART, H. O. (VI) Production Engr., Ord. Dept.
- TEMPLE, R. B. (II) Designing Engr., Blanchard Machine Co., Cambridge, Mass., builders of vertical surface grinders, for U. S. and Allied Govts.
- THORNLEY, A. E. (II) Supt., Narragansett Machine Co., Providence, R. I., building balloon winches for Govt.
- TOBIN, J. J. (XIII) Consulting Road Engr., Cantonment Work, Camp Devens, Mass., June '17—Jan. '18; Supt. of Cons. of Roads and Bridges, Edgewood Arsenal, Md., Jan. '18—Aug. '18. See Military Record.
- TOWNE, L. J. (I) Engr., Div. of Cons. and Engr., Stone & Webster, working on design and construction of arsenals, cantonnments, munitions plants, and shipbuilding.
- TREUTHARDT, E. L. P. (V) Asst. Chemist, Bu. of Chemistry, Dept. of Agriculture; assigned to War Dept., Feb. '18. See Military Record.
- WASHBURN, G. E. (VIII) Asst. later Assoc. Physicist, Bu. of Standards, Washington, D. C., investigating and testing aviation instruments; designed and equipped a laboratory for testing aneroids and engine speed indicators.
- WEINHAGEN, GEORGE JR. (II) Vice-Chairman, Group 4, Div. 5, War Finance Central Comm., Second, Third, Fourth and Fifth Liberty Loans, Second Red Cross War Fund, and Red Cross Christmas Membership, Second and Third War Savings and United War Fund Campaigns, Milwaukee, Wis.; Member, Food Saving Div., Commercial Travelers' Sect., U. S. Food Adm.
- WHIPPLE, M. P. (V) Asst. Supt., Apsley Rubber Co., Hudson, Mass., mfg. boots, army gaiters, and slickers; Member, Legal Advisory Bd.
- WHITAKER, H. E. (VI) Asst. to Chief Consulting Engr., U. S. Govt. Explosives Plants, Office of Director, New York City, building smokeless powder plants, Nitro, W. Va., and Old Hickory, U. S. Govt. Carbocool Plant, Clinchfield, Va., for mfr. of toluol and smokeless fuel, and Marine Boiler Manufacturing Plant, Richmond, Va., for U. S. Shipping Bd., Emergency Fleet Corp.
- WHITE, J. H. (XI) Supt., Welfare Dept., Braden Copper Co., Rancagua, Chile.
- WILLARD, J. A. (II) Engr., Bemis Brothers Bag Co., St. Louis, Mo., in charge of building and power plant design and construction; Supt., plant at Minneapolis, Minn.
- WINCHESTER, L. S. (VI) Engr., The Edison Electric Illuminating Co., Boston, Mass.
- WITMER, G. S. (VI) helped censor prisoners' mail in Jamaica; mined copper in Chile. Volunteered for service, but refused on account of bad arm.
- ZAHNER, R. V. (II) Engr. in charge Building and Electrical Dept., The Koppers Co., Pittsburgh, Pa., producing coke by-products. (Page 394)

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- ABBE, R. H. (II) Asst. Supt., Towle Manufacturing Co., Newburyport, Mass., mfg. head gears for navy gas masks, Franklyn Life Buoys for Portsmouth Navy Yard, and brass clock cases for British army trucks.
- AHLERS, J. G. (I) Sec.-Treas., Barney-Ahlers Construction Corp., New York City, constructing warehouses, power houses, seaplane hangars, guard houses and gas defense plant; built first timber seaplane hangars in Washington, D. C., Oct. '17; built emergency warehouses in record time and at lowest cost, Hoboken, N. J., for Army Transportation, Feb.—Mch. '18; called by Navy to finish uncompleted concrete warehouse in Charlestown Navy Yard, June—July '18; built the largest seaplane hangar in July—Aug. '18 at Rockaway for Navy, in which were built and housed the NC-4, -3 and -1 before starting for Europe. Enlisted in 9th C. A. C., N. Y. Guard but was honorably discharged to take care of govt. rush cons. work. (Pages 244 and 381)
- ALLEN, ABBOTT (I) Asst. Mechanical Engr. for Stone & Webster Co.; one of first group to start off the Hog Island (Pa.) shipyard job, American International Shipbuilding Corp., 17 Sept. '17. (Page 391.)

TECHNOLOGY'S WAR RECORD

- ANDREWS, A. W. (I) Chief Engr., Hannawa Falls Water Power Co., Pottsdam, N. Y., constructing and maintaining hydro-electric plants and transmission lines furnishing power to war industries.
- BABCOCK, J. B., 3d (I) Designing Engr., Fay, Spofford & Thorndike, Boston, Mass., engineers of yards and tracks, Boston Army Supply Base.
- BALDWIN, J. D. (VI) Farmer, Carthage, S. D.; increased greatly production on wheat, hogs and cattle.
- BATCHELLER, G. E. (II) Organized The Akron Co., Long Island City, N. Y., for manufacturing ammunition, '16; completed 1,500,000 M. K. III booster casings, 340,000 M. K. III adapters for 75 mm. shells, complete, with fuse sockets, boosters, and fuse pocket holders.
- BEEBE, H. E. (VI) Chairman, for Edmunds County (S. D.) Liberty Loan Organization for third and fourth Loans.
- BICKNELL, R. S. (X) Div. Supt., Calco Chemical Co., West Works, Bound Brook, N. J., constructing and installing equipment for the mfr. of tetranitroaniline.
- BIEDLER, W. T. (VI) Supt., Electric Cons., Consolidated Gas, Electric Light & Power Co. of Baltimore; purchased equipment, designed and constructed power sub-stations to supply power to ship plate mills, and munition plants; declined commissions in Engrs., and Ord. C. to complete power supply for essential industries.
- BOWERS, G. W. (I) Asst. Engr., in charge of water works cons., Camp Sherman, Ohio, June—Oct. '17; Supt., Water Works Cons., Camp Johnston, Fla.; cons. work at govt. nitrate plant, Toledo, Ohio.
- BROWNELL, W. K. (I) with American International Shipbuilding Corp., Hog Island, Pa. (Page 391.)
- BURNETT, R. F. (III) Inspector, U. S. Fuel Adm., Oswego Co., New York, of boiler plants for efficiency of operation and for allotment for coal; managed People's Gas & Electric Co., Oswego, N. Y., which supplied power to N. Y. Central R. R. car and engine shops, The Ames Iron Works, and others engaged directly in mfg. war supplies, and also furnished gas and electricity to Base Hospital No. 5.
- BURNHAM, P. W. (IV) Field Supt., Thompson Starrett Co., New York City, General Contractors, in charge of concrete work at Camp Upton, N. Y.
- CHRISTIANSEN, E. O. (I) Treas. and General Mgr., Standard Woven Fabric Co., Walpole, Mass., mfg. olive drab webbing for various purposes in army equipment, large quantities of brake lining and clutch linings for army trucks, ambulances and passenger cars, and friction tapes and splicing compounds for Engr. Depot and Aviation Sect. Member, Comm. of Brake Lining Mfrs. to standardize the specifications for brake lining for Motor Transport Service.
- CLARK, E. S. (I) Squad Chief, Asst. Chief Draftsman, and Draftsman, Stone & Webster, drafting in connection with plant cons., American International Shipbuilding Corp., Hog Island, Pa., from its beginning. (Page 391.)
- COBB, F. L. (VI) Telephone Engr., New England Telephone & Telegraph Co., locating new officers and relieving existing officers.
- COLE, J. F. (VI) Telephone Engr., New England Telephone & Telegraph Co., under govt. control, working on transmission studies.
- COLSON, H. C., JR. (IX) Biological Chemist, Sharp & Dohne, Baltimore, Md., standardizing pharmaceutical products, of which large quantities were supplied to Govt.
- COX, J. S. (XI) Pvt., Co. H, 13th Inf., Mass. State Guard, 15 July '17; 1st Sgt.; Disch. Sept. '17. See Military Record.
- CROSSLEY, F. T. (VI) Engr. of safety, Navy Dept., Navy Yard, Puget Sound, Aug. '17—May '18. See Military Record.
- CUMMINGS, H. N. (I) Inst., Wentworth Institute, Boston, Mass.; practical arithmetic for enlisted men of the Navy; strength of materials, rigging, and roadbuilding for mechanics in Army; hygiene and surveying in S. A. T. C.
- CURTIS, ALLEN (I) Asst. Engr., and Asst. Supervisor of Track, Boston & Albany R. R., under U. S. Railroad Adm.
- DAVIS, LUTHER (V) (VII) Chemical Engr., Walter Baker & Co., Milton, Mass., engaged in research on chocolate and cocoa and routine examination of product.
- DILLON, P. L. (VI) Asst. Mgr. of office of Standard Oil Co., Constantinople, Turkey, until '18. See Military Record.
- DODGE, R. L. (VI) Senior Engr. Asst., Bell Telephone Co. of Pa., in charge of engineering work for switchboards for munition plants and shipyards near Philadelphia.
- DUNBAR, A. R. (V) Chemist, Hood Rubber Co., Watertown, Mass., mfg. solid tires for artillery.
- DUNLAP, C. D. (V) Production Mgr., The Kolynos Co., New Haven, Conn.; in England twice during war, to install factory for firm and to enlarge and move the factory; supplied millions of tubes of dental cream to the allied armies at almost cost.
- EVANS, O. D. (V) Expert on Organization, Shipping Bd., Emergency Fleet Corp., Training Center No. 1, Newport News, Va., Nov.—Dec. '17; organized training center to train experienced men to become instructors of inexperienced men in shipyards; Production Engr., Civilian Personnel, Ord. Dept., directing training in all munition plants of the Philadelphia Ord. Dist., July—Aug. '18; Member, Ex. Comm., Mass. Schools Comm. of Liberty Loan Comm. of New England during Third, Fourth and Fifth Liberty Loans.
- EVERETT, W. D. (III) Chemist, Hood Rubber Co., Watertown, Mass., in control of stocks used in the mfg. of hip boots for Govt., with supervision of the handling of stocks and final product.

REGISTER OF CIVILIAN RECORDS

- FITCH, E. O., JR. (XIII) Lt., C. C., U. S. N., retired on account of disability incident to the Service in Dec. '10, organized and started the R. O. T. C., Lafayette College, spring, '17.
- FITZWATER, J. M. (I) Asst. Supt. of Cons. on plant enlargement, Babcock & Wilcox, Bayonne, N. J., mfg. marine boilers; Asst. Supt. of Cons. with Post & McCord, building Federal Ship Plant, Kearney, N. J.; Asst. Supt., Geo. A. Fuller Co., on Ford Shipbuilding Plant, Kearney, N. J. See Military Record.
- FOLEY, P. L. (IV) Assoc. Architect and Supt. of Buildings, govt. cantonment, Durham, N. H., '17-'18. See Military Record.
- GASCHE, K. W. (X) (II) Chemical Engr., Willard Storage Battery Co., Cleveland, Ohio, engaged in design, testing and production of batteries, and in direct charge of Chemical, Experimental and Production Laboratories.
- GEARY, L. E. (XIII) Naval Architect, Dist. 8, Div. of Wood Ship Cons., U. S. Shipping Bd., Emergency Fleet Corp., Seattle, Wash., Nov. '17; resigned, Oct. '18; office issued all plans and instructions to contractors building ninety-three wood ships, rendered opinions and approved plans on all technical matters arising during their cons.; designed the Geary type wood ship, largest afloat, for Shipping Bd.
- GEGENHEIMER, R. E. (V) Chief Chemist, Mathieson Alkali Works, Niagara Falls, N. Y., mfg. bleaching powder, liquid chlorine, and caustic soda for C. W. S. and Ord. Dept.; first produced in this country tetrachlorethane for airplane dope.
- GREENE, C. E. (II) Factory Supt., E. B. Badger & Sons Co., Boston, Mass., mfg. chemical apparatus especially for explosive plants, including govt. plants at Muscle Shoals, Ala., Nashville, Tenn., Nitro, W. Va., and Edgewood Arsenal, Baltimore, Md., and mfg. copper and sheet iron parts of ship equipment.
- HARRINGTON, WALTON (III) (IV) Senior Engr., Northern Atlantic Dist., U. S. Shipping Bd., Emergency Fleet Corp., 1 Oct. '18; appointed member of Technical Staff, Dist. Plant Engrs. Office; prepared reports on plant and equipment of shipyards located along Atlantic coast from Philadelphia, Pa., to Machias, Maine; worked on refrigeration program for cargo hulls, and dry dock program for U. S. Merchant Marine Ships.
- HARRISON, H. N. (IV) Dist. Supt. of Traffic, Bell Telephone Co., Philadelphia, Pa., handled govt. calls and traffic.
- HASTINGS, RUSSELL (VI) Asst., U. S. Fuel Adm., Washington, D. C., 31 Dec. '17—15 Dec. '18; work included distribution of coal to public utilities and during Sept. and Oct. '18, installed card index systems in some of the largest State Fuel Adm. offices for keeping track of the coal supply of every concern using more than 300 tons per year.
- HEARD, F. C. (III) Asst. Dist. Engr., Portland Cement Assn., New York Office, working on housing matters, cantonment road cons., concrete barge construction.
- HENDERSON, S. L. (VI) Engr., Westinghouse Electric & Manufacturing Co., Pittsburgh, Pa., associated in design of turbo-generators for battleships and battle cruisers, and in work for generators for merchant marine; Inst. of electro-mechanics being trained at Carnegie Institute of Technology.
- HIRSCHFELD, B. S. (IV) Hull Draftsman, Union Construction Co., San Francisco, Calif. Enlisted in Army, Nov. '17; discharged shortly after to serve as hull draftsman.
- HODGES, F. E. (VI) Engr., Commercial Engr. Dept., New York Telephone Co., working on rate studies and questions of commercial policy involving engr. considerations.
- HOLBROOK, G. G. (XIII) Asst. Supt., Bethlehem Shipbuilding Corp., Fore River Plant, Quincy, Mass., in charge of dock work on destroyer program at Quincy and Squantum plants. (Page 385.)
- HORNE, R. W. (XI) Asst. Engr., Fay, Spofford & Thorndike, Boston, Mass., Consulting Engrs., in charge of sanitary and storm water drainage systems for the Boston Army Supply Base.
- HUERDLER, E. G. (III) in charge of Organic Laboratory, Curtiss Aeroplane Corp., making analyses of paints, oils, and varnishes, and testing cotton, silk and rubberized material for different uses. See Military Record.
- HUMPHREY, G. S. (VI) Electrical Engr., West Penn. Power Co., Pittsburgh, Pa.; helped supply all power possible to coal and steel-producing industries in Pittsburgh Dist.
- JACOBY, R. W. (X) Asst. to Mgr., Garner Print Works and Bleachery, Garnerville, N. Y., mfg. piece goods, much of it for Govt.; Chairman, Industrial Comm., Red Cross Drive.
- JOHNSON, M. H., JR. (IV) Asst., Exemption Bd. No. 2, Terre Haute, Ind.; Member, Examining Comm., for examination of candidates for Arty. Off. Tr. Camp.
- JONES, BRADLEY (II) Instructor in U. S. Shipping Board School for Officers. (Page 31.)
- JONES, R. L. (III) Asst. Chief, Oxide Dept., New Jersey Zinc Co. of Pa., Palmerton, Pa., mfg. all grades of oxide of zinc used in rubber, tins and paints, and pharmaceutical zinc oxide.
- LAURSON, P. G. (I) Designer, Cons. and Mechanical Dept., Federal Shipbuilding Co., Kearney, N. J., designing special machinery for shipbuilding processes.
- LEE, LASLEY (I) Engr., Geological Survey, Dept. of Interior, Tacoma, Wash., investigating for Water Resources Branch, collecting and compiling data of weekly production of electricity in State of Washington for U. S. Fuel Adm.
- LODGE, JOHN (I) Traveling Organizer, Federal Fuel Adm. at Washington, D. C., 1 Aug. '18—7 Jan. '19; work included organization of fuel conservation in the Northeastern States.
- LOMBARD, R. H. (XIV) Chemist, Geophysical Laboratory of the Carnegie Institution of Washington, doing research work on optical glass at Bausch & Lomb Optical Co., Rochester, N. Y., and at the Pittsburgh Plate Glass Co., Charleroi, Pa.

TECHNOLOGY'S WAR RECORD

- LUFKIN, F. R. (VI) Electrical Engr., Elgin, Ill., handled work of an electrical nature for Aurora, Elgin & Chicago R. R. Co.
- LUNT, G. P. (X) Chemical Engr., E. B. Badger & Sons Co., Boston, Mass.; work consisted of design, erection, and operation of plants for the mfg. of acetone, acetic acid, ether, alcohol, nitro toluol, etc. (Page 398.)
- MACAFEE, R. D. (I) Chairman, Fuel Comm., and Soldiers' Information Bu., Marion, Mass.; Asst. Mgr., South-eastern Mass. Power & Electric Co., which furnished power for an aviation station, a naval reserve station, a govt. wireless station, Cape Cod Canal, and a large number of factories making war supplies.
- McMURTRIE, D. C. (VI) Director, Red Cross Institute for Crippled and Disabled Men.
- McRAE, G. W. (VI) Engr., American Telephone & Telegraph Co., New York City, connected with engr. of important addition to toll line facilities radiating from Washington from the various Army and Navy Hq., and Army cantonments.
- MAGLOTT, G. F. (XI) Div. Engr., Morris Knowles, Inc., Pittsburgh, Pa., Designers and Constructors of Camps Meade and McClellan; Asst. to Mr. Morris Knowles, Chief Engr., Div. of Housing and Transportation, U. S. Shipping Bd.
- MARCH, W. H. (IV) Architect in charge of Architectural Dept., Chickasaw Land Co., subsidiary company of U. S. Steel Corp., Mobile, Ala.
- MASON, A. B. (I) Aeronautical Mechanical Engr., on cons. of aviation camps, 27 Aug. '17—11 Jan. '18; in charge of heating, electrical and mechanical installation, Hazelhurst Field, Mineola, L. I., N. Y., and Concentration Camp, Garden City, L. I. See Military Record.
- MAXFIELD, J. P. (XIV) Div. Head, Research Branch, Western Electric Co., New York City, working on development of anti-aircraft defense systems and of gun ranging system in collaboration with officers of Engr. C.
- MELLISH, M. H. (I) Field Engr., Chief Engr. on cons., and Resident Engr., The J. G. White Engineering Corp., Engrs. and Contractors, at Aeronautical Experimental Station, Langley Field, Va., Navy Nitrate Plant, Indian Head, Md., and transmission lines and substations from Cincinnati, Ohio, to Nitrate Plant No. 4 at Anchor, Ohio.
- MILLER, H. F. (II) Production Expert, Sig. C., U. S. A., and Bu. of Aircraft Production. Entered Service, 15 Mch. '18; transferred to Production Engr. Dept., Dayton, Ohio, to inspect factories making veneered parts for airplanes; carried on experimental work in veneers and waterproof glues, including process for die stamping veneer used in airplane wing ribs, built up wing beams, and very thin veneer as a substitute for linen as a wing covering.
- MONTO, C. P. (X) Supt., National Carbon Co., Cleveland, Ohio, mfg. batteries for firing guns and mines, and field telephones, carbon brushes for aeroplane ignition systems, and trench lighting generators.
- MYLCHREEST, G. L. (I) Chief Designing Engr., Ford, Buck & Sheldon, Consulting Engrs., Hartford, Conn.; designed and supervised the cons. of many factories and warehouses for war industries.
- NORTHROP, J. W. JR. (IV) Resident Engr., Rice Institute, Houston, Texas, constructing equipment and quarters for S. A. T. C.
- ORCHARD, W. J. (XI) General Sales Mgr., Wallace & Tiernan Co., Inc., New York City, furnishing water sterilizing apparatus for Army; designed and constructed several fleets of Motor Truck Mounted Water Purification Equipment comprising complete water pumping station filter plant, purification works, and testing laboratory. (Page 496.)
- OSBORN, F. W. (III) Supervisor of Gas Mask Inspectors, C. W. S., at Long Island City, N. Y.; active in establishing Mech. Dept., Gas Defense Plant, Long Island City.
- PARSONS, H. F. (I) Asst. Supt., Sewer Cons., and Supt. of Water, Thompson-Starrett Co., in charge of construction of sewers in several areas at Camp Upton, and supt. of all water distribution system cons. at Powder Plant, Nitro, W. Va.
- PEABODY, DEAN, JR. (II) Inst., S. A. T. C., and Army and Navy Aviation Schools. (Page 26.)
- PEARL, H. I. (I) Consulting Mining Engr. for company producing manganese, Crosby, Minn.
- PERLEY, H. C. (II) Reserve Engr., and Asst. Engr., U. S. Shipping Bd.; acted as Watch Engr. in the transport service to France, and in coastwise merchant service, Nov. 17—Jan. 19. See Military Record.
- PERRY, H. J. (XI) Treas., J. S. Lang Engineering Co., Boston, Mass., engaged in railroad work.
- PERRY, H. R. (III) Mgr., Conveyor Shoe Factories, W. H. McElwain Co., Manchester, N. H.
- PHELPS, D. W. (IV) Sec., Ship Protection Comm., U. S. Shipping Bd., which adopted and developed submarine camouflage. See Military Record.
- PHILLIPS, A. I. (II) Gas Expert, Ord. Dept., on engr. work connected with contracts for toluol for the Army.
- POMEROY, C. T. (VII) Chief Sanitary Inspector, Red Cross, under direction of U. S. Public Health Service, in vicinity of Camp Gordon, Ga.; supervised milk supply and allied products.
- PRESTON, R. A. D. (II) at Goodyear Tire and Rubber Co., Akron, Ohio; Supervisor of production of aeronautic goods and of cons. of coast patrol dirigibles for Navy, Feb.—June '17; Mgr., Goodyear Balloon School, training first class of Navy dirigible pilots and later managing training of kite balloon pilots, June '17—June '18; Chief Pilot, June '18. See Military Record.
- RANSOHOFF, NATHAN (II) General Mgr., The Ideal Concrete Machinery Co., Cincinnati, Ohio, building machinery for cleaning 30-caliber rifle and machine-gun shells, also booster casings and other ammunition parts.

REGISTER OF CIVILIAN RECORDS

- REYNOLDS, G. B. (II) Plant Engr., Canadian Kodak Co., West Toronto, Canada, furnishing films, plates and paper for army use.
- REYNOLDS, H. G. (II) Purchasing Agent, Hood Rubber Co., Watertown, Mass.; purchased all machinery and mechanical equipment.
- RICHARDSON, H. B. (II) Asst. in Agricultural Technology, Bu. of Markets, Dept. of Agriculture; assigned to carry out spinning tests of long-staple cotton to determine best conditions of mfr. and best variety for airplane cloth, in co-operation with Sig. C., at Nashaverha Mills, New Bedford, Mass.
- RIETSCHLIN, O. R. (I) Employment Mgr., Aberthaw Construction Co., Boston, Mass., in connection with varied emergency war cons. work of company.
- ROBB, C. A. (II) Supt., Gauge Production, Div. of Gauges and Standards, Imperial Munitions Bd., Ottawa, May '16—Nov. '17; Technical Asst. to U. S. Representative of Imperial Munitions Bd., Washington, Nov. '17—Dec. '18.
- ROBINSON, C. F. (II) Timekeeper on cons., Q. M. Dept., Camp Devens, Mass.; Production Inspector for Aberthaw Construction Co., Boston, Mass., New England Structural Co., Everett, Mass.; reported on the location and progress of fabrications of each piece of steel work for Squantum Destroyer Yard at Quincy, Mass.
- ROBINSON, K. C. See Class of '12.
- SAWYER, L. E. (II) Asst. to Asst. Supt., Babcock & Wilcox Co., Bayonne, N. J., mfg. boilers for destroyers and other navy ships, and stationary boilers for land installations.
- SHERMAN, M. C. (II) Pittsburgh Sales Mgr., and later Philadelphia Mgr., The Baker Dunbar Allen Co., Construction Engrs. for both Govt. and private corporations.
- SILSBEE, F. B. (VI) Associate Physicist, Bu. of Standards, U. S. Dept. of Commerce, engaged in laboratory work throughout war; in charge of investigations of spark plugs and ignition apparatus for aircraft engines.
- SITTINGER, C. J. (VI) (I) Elec. Engr., with John A. Stevens at Fore River Plant, Bethlehem Shipbuilding Corp.; Mgr., Plant Engr. Dept., Bethlehem Loading Co.; in charge of all electrical and mechanical engr. in connection with erection of govt. shell loading plant at May's Landing.
- SMITH, O. S. (I) with Fay, Spofford & Thorndike on Boston Army Supply Base.
- SNEDDON, J. S. (II) Mgr. of Cons. and Supt. of Mfr., The Babcock & Wilcox Co., New York City, in charge of additions and extensions to all plants of the company at Bayonne, N. J., Beaver Falls, Pa., and Barberton, Ohio, including forge shops for 9" H. E. shells, machine shops, boiler plate case shops and complete tube mill, necessary for filling govt. contract work.
- SOUTHWICK, L. S. (VI) Production Mgr., Electro Chemical Engraving Co., producing airplane dials, compass dials, and range finder plates.
- SPALDING, W. T. (IV) Mgr., army cons. contracts in Hawaii, Spalding Construction Co., until Nov. '17; Supt. of Cons., Ord. Base Depots, France, for Stone & Webster, until 14 Apr. '18; Asst. to Public Works Officer for France, U. S. Naval Aviation Forces, constructing Naval Aviation Stations, until 12 Jan. '19. See Military Record.
- TAYLOR, H. V. S. (VI) Chief Electrical Engr., D. & W. Fuse Co., Providence, R. I., producing war material.
- TAYLOR, P. W. (I) Asst. Works Mgr., with Lockwood Greene & Co., Watertown, Mass., Engrs. for the U. S. Shipping Bd., Emergency Fleet Corp.; work consisted of building a town for ship workers, houses, community buildings, stores, streets, sewer and gas distribution systems.
- TAYLOR, R. R. (X) Chemist, Goodyear's Metallic Rubber Shoe Co., New Haven, Conn.; in charge of laboratory work on army rubber footwear and gas mask stock.
- THOMAS, G. S. (XII) Draftsman and Estimator, Technical Dept., Scientific Branch, U. S. Shipping Bd., Emergency Fleet Corp., Washington D. C., 8 Oct. '17—10 June '18; Philadelphia, Pa., 10 June—21 Nov. '18.
- TOD, M. S. (I) indirectly engaged with enterprises on war work.
- TREVITHICK, H. P. (V) Official Chemist, New York Produce Exchange; analyzed shipments of fats and oils going abroad for British, French, Italian, and Swedish Govts.
- TRIPP, J. G. (I) General Supt., Bent Bros., Contractors, Los Angeles, Calif., making and laying eight miles of reinforced concrete pipe for domestic water supply, furnishing Ft. Baker and Ft. Carey.
- TRUEBLOOD, H. M. (VI) Experimental Investigator, Navy Dept., Naval Experimental Station, New London, Conn., Jan. '18—15 Feb. '19; work on submarine detection conducted on destroyers, chasers, submarines, and seaplanes around New London, and in laboratories at the Experimental Station.
- TUTTLE, J. C. (II) Mgr., Development Dept., Firestone Tire & Rubber Co., Akron, Ohio.
- WALLER, R. P. (I) coal mining, Indiana, Pa.
- WALLOUR, C. W. (VI) Engr., American Telephone & Telegraph Co., Long Lines Dept., designed and installed underground and aerial toll cables between large cities of the East.
- WATERS, L. W. (V) Bio-chemist, Experimental Station, E. I. du Pont de Nemours & Co., Wilmington, Del.; developed new processes for producing chemicals essential to the munition industry.
- WHEELER, RODNEY (I) Office Asst., The Stanley Works, Bridgewater, Mass., producing war material.
- WHEELWRIGHT, BARTON (I) (VI) Acting Signal Engr., later, Engr., Maintenance of Way, Grand Trunk Lines in N. E., Portland, Maine.

TECHNOLOGY'S WAR RECORD

- WHITNEY, J. T. (IV) Structural, Designing and Constructing Engr., for the Boston Edison Electric Illuminating Co., on the addition to the South Boston power house to supply current to the Quantum Destroyer Plant and the Watertown Arsenal; Capt. of a team, Wakefield (Mass.) Liberty War Fund. See Military Record.
- WILLIAMSON, D. V. (II) Production and Cost Mgr., Detroit Gear & Machine Co., Detroit, Mich., mfg. clutches for the class B, army motor trucks.
- WILSON, C. W. (II) Asst. Shop Supt., Hull Div., U. S. Navy Dept., at Boston Navy Yard. (Pages 234 and 248.)
- WING, R. L. (V) Asst. Engr., Area E (Cotton Purification), Explosives Plant "C", Nitro, W. Va.; constructing and operating cotton purification plant with a daily capacity of 500,000 lbs. of purified cotton ready for nitration, from linters and hull fibre.
- WOHLGEMUTH, B. S. (III) Asst. Supt., Blast Furnace, National Tube Co., Wheeling, W. Va.

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- AARON, J. A. (VI) Clerk, Mfg. Survey Sect., Gun. Div., War Dept., Washington, D. C., 1 Oct.—11 Dec. '17. See Military Record.
- ADAMS, F. H. (XIII) Asst. to Supt. of Hull Construction, Staten Island Shipbuilding Co., Staten Island, N. Y., in charge of construction and fitting out of hulls of cargo steamers for Emergency Fleet Corp.
- ALLEN, D. P. (II) Asst. Engr., Des Moines Gas Co., Iowa, in charge of Distribution and Meter Shops; company produced toolol for explosives.
- ALLEN, W. D. (XIII) Leading Draftsman, Lake Torpedo Boat Co., Bridgeport, Conn., in charge of scientific and design work on U. S. Submarines; Naval Architect and Resident Inspector, Bayles Shipyard, Inc., Port Jefferson, N. Y., under Emergency Fleet Corp., July '17.
- ALTER, J. F. (IV) Inspector, Inspection Branch, Q. M. C., New York and Boston Depots, 1 Oct. '17—Mch. '19.
- ANDERSON, C. S. (VI) Supt., Clark Electric Power Co., Tooele, Utah, supplying power to mines producing potash and copper.
- BARKER, C. M. (VI) Mgr. of Sect., Employment Service, Dept. of Labor, Boston, Mass.; purchased mechanical equipment for Supply Div., Cons. Corps, Hog Island; engaged in cancellation work for Emergency Fleet Corp. See Military Record.
- BARR, KESTER (II) Buyer of screw machine products and turnbuckles, Curtiss Aeroplane & Motor Corp. Buffalo, N. Y., 8 May '17.
- BARTON, R. M. (VI) Asst. Engr. on Tests of Ord. Material, Ord. Dept., 10 June '18. Resigned in five weeks due to health giving out.
- BATTY, E. J. (II) Mechanical Engr., Sayles Finishing Plants, Riverside, R. I.; mfg. textiles for Govt. and bleaching linters for mfr. of gun cotton.
- BAXTER, L. L. (IV) in charge of a company transporting by river grain and live stock, and lumber for the du Pont Engineering Co. for smokeless powder plant near Nashville, Tenn.; Engr., on construction of housing, units at plant, July—Dec. '18.
- BEAN, O. R. (IV) designed wood vessels for Grant Smith Porter Shipbuilding Co., U. S. Emergency Fleet Corp.; designed housing scheme, G. M. Standiter Corp., Emergency Fleet Corp.; designed shipways for Columbia River Shipbuilding Corp.
- BIGELOW, J. A. (IV) Draftsman on camp cons. work, War Dept., Porto Rico, Feb. '18; Cost Engr., Camp Bragg, S. C., Sept.; Building Engr., Camp Benning, Ga., May '19.
- BOGDASARIAN, SUREN (IV) Structural Draftsman, Carnegie Steel Co., New Castle, Pa.
- BOWMAN, J. R. (XI) Draftsman, New England Structural Co., Everett, Mass., detailing structural steel for Quantum destroyer plant, Q. M. Terminal, South Boston, for other buildings for war work, and for steel fabricated ships.
- BROOKS, A. W. (VI) Topographical Inspector, Corps of Engineers, U. S. A., Military Survey of Panama, May '17; in Canal Zone and Republic of Panama, in charge of topographical and geodetic work and of drafting on military surveys for defense of the Panama Canal.
- BROWN, G. A. (X) Asst. Supt., Chemical Factory, W. H. McElwain Shoe Co., Manchester, N. H., producing waterproofing compounds for army shoes, "Shoe Dubbing" for A. E. F., and chemical supplies for shoe industry.
- BURLEIGH, W. S. (II) Statistician, William Whitman Co., Inc., Boston, Mass., supplying textiles for govt. use.
- BURTON, F. A. (IV) Draftsman, Q. M. C., 27 Apr. '18—29 Aug. '18. Confidential Clerk attached to office of American Military Attaché, The Hague, Netherlands, 19 May '18. See Military Record.
- CHURCHILL, F. R. (II) Engr. Asst., with Stone & Webster, in Boston and Syracuse, N. Y., on construction of arsenals and picric acid plant for Somet-Solvay Co.
- COMSTOCK, M. E. (VI) Engr. on Motor Design, later in charge, Special Testing Dept., General Electric Co., Lynn, Mass., designing electrical apparatus used in naval vessels.
- COOKE, F. G. (XIII) Asst. on Hull Construction, Bath Iron Works Ltd., Bath, Maine. (Page 383.)
- COOLEY, L. C. (X) Chem. Engr., E. B. Badger & Sons Co., Boston, Mass., erecting and operating equipment for mfg. chemicals for cordite, smokeless powder, and T. N. T. in U. S. and Canada; supplied equipment for recovery of coal gas products.

REGISTER OF CIVILIAN RECORDS

- CORNELL, S. H. (XIII) Technical Asst., Ship Protection Comm., U. S. Shipping Bd., in charge of experimental work on torpedo protection net for merchant vessels at sea.
- CORTS, F. L. (II) Asst. Chief Engr., Atlantic Factory, National Lead Co., Port Richmond, L. I., N. Y., building and designing machines to die cast parts for gas masks, airplane parts, radio sets and bearings for Liberty Motors; Chief Engr., Croke Plant, National Lead Co.; Asst. Supt., Jewett Works, 1 Aug. '19.
- CORY, M. M. (I) Treas. and General Mgr., Giddings & Lewis Manufacturing Co., Fond du Lac, Wis., mfg. special machinery for jigs and fixtures for small arms, field artillery and naval guns, Liberty engines, de Havillands, tanks and marine engines, for Ord., Airplane, Navy, and Q. M. Depts., and for repair shops in France.
- COUPAL, E. A. (II) Mgr., P. A. Coupal & Sons, Boston, Mass., mfg. special machinery, tools, fixtures, and jigs.
- CRANE, RUFUS (I) Asst. Engr., Forest Products Laboratory, Forest Service, Dept. of Agriculture, Madison, Wis.
- CUMINGS, G. B. (VI) Electrical Inspector, with Inspector of Machinery, U. S. N., Fore River Plant, Bethlehem Shipbuilding Corp., Quincy, Mass., inspecting and testing destroyers and submarine chasers.
- DANIELS, F. H. (VI) Sec. and General Mgr., Sanford Riley Stoker Co., Worcester, Mass., supervising installation of mechanical stokers for the Govt., munitions factories, and essential industries.
- DARROW, BURGESS (VI) Engr., Tire Design Dept., Goodyear Tire & Rubber Co., Akron, Ohio, doing special work on airplane and pneumatic truck tires. (Page 401.)
- DAVIES, A. C. (XIV) Sales Engr., General Electric Co., Detroit, Mich.; Specialist in the application of motors to all sorts of machinery used for war purposes.
- DENISON, O. B. (VI) Production Engr., Simplex Wire & Cable Co., Boston, Mass., mfg. insulated wire and cable for Govt.; Sec., Company's War Savings Society.
- DENNETT, M. S. (II) Mgr. of Detroit Office, Dayton Automatic Products Co., Muskegon Motor Specialties Co., and Berkshire Magneto Co., producing cam shafts and screw machine parts for building Liberty Motors; developed a magneto for Liberty Motor.
- DOLLIVER, H. F. (I) Chief Clerk in Field Offices, Abertlaw Construction Co., Boston, Mass., in charge of traffic, and expediting materials to all jobs.
- DOW, C. W. (I) Chief Inspector, Ignition Equipment, Bu. of Aircraft Production, 14 Dec. '17—29 Jan. '19.
- DUFFY, J. F. (VI) Asst. Supt., Reed Prentice Co., Worcester, Mass.; Factory Accountant, Asst. Mgr., and Asst. Head of Planning Dept., Curtiss Aeroplane & Motor Corp., Buffalo, N. Y., mfg. airplanes for Army and seaplanes for Navy, Dec. '17. (Page 369.)
- DUNLAP, J. H. (II) Engr., Experimental Dept., The Goodyear Tire & Rubber Co., Akron, Ohio, engaged in development, specification, and inspection work on tires, tubes, gas masks, and balloons for Govt. (Page 401.)
- ELDER, G. W. (V) Supt., Sanhican Rubber Co., Trenton, N. J., reclaiming rubber.
- ESTES, G. H. (II) Supt., Continental Mills, Lewiston, Me., mfg. cotton cloths for Govt.
- FALES, E. N. (II) Member, Comm. to visit the Royal Air Force Schools at Toronto (ground schools for training aviators were established on the basis developed by this commission); Aeronautical Mechanical Engr., Air Service, Airplane Dept., McCook Field, Dayton, Ohio, and Washington, D. C.
- FERRIS, L. P. (VI) Electrical Engr., American Telephone & Telegraph Co., New York City, in charge of designs for elimination of interfering currents in telephone circuits, and of telegraph transmission development.
- FORRISTALL, G. B. (II) General Asst. to Chairman, Houston War Advertising Comm., preparing war advertising copy for Texas.
- FRANCIS, S. A. (IV) Architect with Albert Kahn, Detroit, Mich., on several aviation fields. See Military Record.
- FRAZIER, D. N. (II) Consulting Safety Engr., Air Nitrates Corp., mfg. ammonium nitrate by the Cyanamid Processes; supervised accident prevention work during construction of plants and installation of machinery and equipment, approved plans and specifications regarding construction of buildings and guards for machines and equipment.
- FRISBIE, H. C. (I) Chief of Cornell (Wis.) Div., American Protective League; prepared investigations for Govt. under supervision of Wisconsin Agent of the Dept. of Justice.
- FRYER, HERBERT (VI) Purchasing Engr., Cantonment Div., Q. M. C., purchasing materials for Council of National Defense for heating and power of all camps; Chief Buyer, Purchasing Dept., American International Shipbuilding Corp., Hog Island, Pa.; Manager, Supply Div., U. S. Shipping Bd., New England Dist. See Military Record.
- GARDNER, A. L. (II) Charge Man, Drafting Room, Fore River Plant, Bethlehem Shipbuilding Corp., ordering material, writing specifications, and designing, chiefly turbine, for the present type of destroyers; compiled engr. report of machinery operation during trial trips since May '18; worked on turbine and reciprocating engine installations of hulls for the Emergency Fleet Corp.
- GERSHBERG, JOSEPH (VI) with General Electric Co.; Engr., The Terry Steam Turbine Co., Hartford, Conn., on improvement and development of their condensing type turbines, 1 Oct. '18; Asst. Power Plant Engr., Fred T. Ley Co. on Atlas Powder Co. Plant, Havre de Grace, Md., 1 Jan. '18; Cons. Engr. for John A. Stevens on Bethlehem Loading Co. Plant, Mary's Landing, N. J.

TECHNOLOGY'S WAR RECORD

- GLAZIER, L. G. (VII) Special Agent, U. S. Employment Service, Dept. of Labor. Asst. to Chief of Skilled Labor Sect., 1 July—1 Aug. '18; Chief of Skilled Labor Sect., Washington, D. C., in charge administration and direction of all work pertaining to skilled labor through State Directors and in co-operation with Adj.-Gen. Office in furloughing skilled labor from the Army, 1 Aug.—3 Oct. '18. See Military Record.
- GRAVELY, J. S. (V) Head of Laboratory Div., Winchester Repeating Arms Co., New Haven, Conn., except during period in Ord. Dept., 8 Aug. '17—1 June '18. See Military Record.
- GREENLEAF, KENNETH (VI) Sales Engr., Sanson & Rowland, Detroit, Mich., producing tool kits for Liberty Engines.
- GROSSMANN, M. A. (III) Physical Chemist, in charge of heat treatment of steel, U. S. Bu. of Standards, Washington, D. C.
- HAINES, T. H. (II) Asst. Supt., Maintenance of Lines Dept., Edison Electric Illuminating Co., Boston, Mass., furnishing power and light to war industries.
- HAUSMAN, ISAAC (I) Pres., The Building Products Co., Toledo, Ohio, furnishing materials for Govt. buildings in vicinity of Toledo, particularly reinforcing rods; Emergency Police Duty; Deputy U. S. Marshal.
- HAYES, S. L. (V) Supt., Lanett Bleachery and Dye Works, West Point, Ga., dyeing and bleaching cotton piece goods for Q. M. Ord., Navy, and Aircraft Departments.
- HAYMAN, M. E. (IV) Designer, The Fred T. Ley Co., on govt. powder plant and village, Perryville, Md.
- HESS, H. C. (IV) Structural Engr. designing and inspecting engineering work on plants mfg. war materials and fabricating ships.
- HILDEBRAND, W. H. (I) Pres., Walter H. Hildebrand & Co., Chicago, Ill., Govt. Contractor for army chevrons and navy rating badges; Sec., Swiss Div., Liberty Loan Comm. Volunteered in Air Service but was rejected.
- HOLBROOK, R. A. (X) Chemist, Beacon Falls Rubber Shoe Co., Beacon Falls, Conn., mfg. rubber boots and shoes for Govt.
- HOPKINS, W. B. (VI) Electrical Engr., Stone & Webster, in charge of electrical work for American Ord. Base Depot, Washington, D. C., 12 Sept. '17; Electrical Engr. and Asst. to Director-Gen. of Construction, American Ord. Base Depot, France, '17 Feb.—20 Dec. '18; Asst. to Chief Engr., Technical Advisory Bd., A. E. F.; did work on Ord. Shops for A. E. F. at Mehun-sur-Yevre, and cons. work at Bourges, Gievres, St. Nazaire, Montoir, Is-sur-Tille and Bordeaux.
- HUGELMANN, J. R. (I) Safety and Welfare Engr., U. S. N. R. F. Navy Yard, Portsmouth, N. H., Apr. '18.
- HUMPHREVILLE, W. E., JR. (VI) Inst., Mechanical, Gas Engine, and Auto Dept., S. A. T. C., College Station, Texas.
- HUTCHINS, OTIS (XIV) Metallurgical Engr., The Carborundum Co., Niagara Falls, N. Y., mfg. abrasives and ferro alloys for War Dept. for production of hydrogen.
- JENKS, H. G. (VI) Supt., Eastern Mass. Electric Co., Salem, Mass., furnishing electricity to essential industries.
- JOHNSON, C. R. (X) Chief Chemist, Goodyear Tire & Rubber Co., Akron, Ohio, mfg. gas masks, balloons, dirigibles, and truck tires. See Military Record and page 400.
- JONES, W. T. (II) Asst. to Engr. of Tests, New York, New Haven & Hartford R. R., U. S. Railroad Adm.
- KELOGG, PAUL (IX) Engr., Larkin Co., Buffalo, N. Y., mfg. "sag paste" for Govt.
- KERR, C. P. (II) Inspector, Tire Expert and Mech. Asst., Motor Transport Div., Aviation Sect., Sig. C., Washington, D. C., inspecting airplane engines and testing trucks, July—Oct. '17. See Military Record.
- KUSHLAN, MAX (VI) Inst., Steam Engr., U. S. School for Firemen, Oilers and Watertenders for the Merchant Marine, Chicago, Ill.; wrote, "The Gas Motor," textbook used in schools for military aviation and automobiles mechanics.
- LAFRENIERE, T. J. (XI) Sn. Engr., Bd. of Health, Quebec, in charge of water supplies in towns where troops were concentrated and hospitals located; helped train sanitary officers. Exempted from military service upon request of Health Bd.; tried to enlist as Sanitary Engr. in '15, refused, later accepted to serve at Dardanelles, Dec. '15, but British forces retired before his departure from Canada.
- LAKE, H. E. (I) Advisory Engr. on Fire Protection, Bu. of Yards and Docks, Navy Dept., Washington, D. C., passing on the fire protection of all new projects and upon the equipment for such purpose; reported on the fire hazards of existing stations with recommendations for improving conditions for Navy Dept. and Housing Corp., 15 Sept.—21 Nov. '18. Physically unfit for military service.
- LARRABEE, H. P. (VI) in charge of Shipping Dept., Graton & Knight Manufacturing Co., Worcester, Mass., mfg. bayonet scabbards, revolver and pistol holsters, helmet and gas mask straps.
- LAWRENCE, BEARDSLEY (I) Office Mgr., T. Stuart & Sons Co., subcontractors on construction of Boston Army Supply Base.
- LEVY, NATHAN (I) with Fay, Spofford & Thorndike on Boston Army Supply Base.
- LEWIS, H. A. (IV) Engr. Draftsman and Architect, Gallaudet Aircraft Corp., East Greenwich, Conn., constructing Curtiss Flying Boats and doing experimental work on the Gallaudet Hydroplane.
- LOUD, R. P. (VI) Electrical Heating Engr., Edison Electric Illuminating Co., Boston, Mass., installing electrical cooking equipment on Commonwealth Pier for Navy Dept.
- LOWENBERG, M. J. (VI) Asst. Electrical and Research Engr., Interborough Rapid Transit Co., New York, designing electrical distribution system and protecting against electrolysis, and breakdowns of new and old subway and elevated systems.

REGISTER OF CIVILIAN RECORDS

- McMILLAN, L. R. (IV) Inst., Camp Martin, Tulane University, New Orleans, La.
- MacNAUGHTON, ALBERT (IV) Inspector, Inspection Div., later Asst., Requisition Dept., Bu. of Yards and Docks, Navy Dept., Washington, D. C., requisitioning building materials and supplies, and approving award of contracts for all foreign and domestic naval bases, air stations and ship repair stations.
- MACPHERSON, R. G. (II) Cons. Supt., Air Nitrates Corp., Muscle Shoals, Ala., supervising installation of liquid air and caustic plant.
- MAGOON, C. A. (VII) Asst. Plant Physiologist, Horticultural and Pomological Investigations Office, Bu. of Plant Industry, Dept. of Agriculture, Washington, D. C., doing research work on problems in conservation and utilization of fruit and vegetables.
- MARSTON, N. S. (VI) Inst. in Naval Aviation School, M. I. T.
- MATHER, R. H. (VI) Engr., Ford, Buck & Sheldon, Inc., Hartford, Conn., furnishing plumbing, heating, sprinkler and wiring plans and specifications for war industries plants.
- MERRILL, C. H. S. (I) Asst. to General Mgr., American International Shipbuilding Corp., Hog Island, Pa. See Military Record.
- MEYER, T. F. W. (II) Production Mgr., later Efficiency Engr., Dusenber Motors Corp., Elizabeth, N. J., mfg. "Bugatti" 16 cylinder, 500 H. P. airplane engine.
- MILLS, L. O. (VI) Inspector, Sig. C, supplies at factories; settled claims arising from cancelled contracts.
- MOREY, C. T. (II) Asst. Supt., Rhode Island Tool Co., Providence, R. I., mfg. material and parts for Emergency Fleet Corp., and War and Navy Departments.
- ODELL, L. G. (XIV) Mgr., Crude Rubber Dept., Goodyear Tire & Rubber Co., Akron, Ohio, in charge company's far-eastern rubber-buying houses in Singapore, Batavia, and Colombo.
- OLANSKY, MORRIS (V) Chief Chemist, Technical Dept., in charge of Laboratory and Compounding, Plymouth Rubber Co., Canton, Mass., producing rubber sundries; engaged in research and development of toxic-gas resistant rubber compounds for gas masks for Govt.
- OSBORN, FRANKLIN, 2d (III) Concentrator Supt., Eustis Mining Co., Eustis, P. Q., remodelling concentrator and installing oil-floatation system for treatment of low grade cuprififerous pyrites ores needed for mfg. of sulphuric acid, '16-'19.
- PEAD, W. J., JR. (VI) Supt., Lowell Gas Light Co., Mass., mfg. illuminating and industrial gas, and by-products used in munitions.
- PEARSON, P. H. (II) Asst. Chief Dispatcher, Boston & Maine R. R., Concord, N. H. Tried three times to enter service but rejected on account of occupation.
- PEPPER, C. L. (II) Training Officer, Mass. Bd. of Education, in charge of war training classes; had supervision of Training Rehabilitation Div., Federal Bd. for Vocational Education for disabled soldiers, sailors, and marines in New England States.
- PERRY, C. R. (III) Metallurgist, New England Westinghouse Co., mfg. Russian military rifles, '14-'17, with Col's Patent Fire Arms Mfg. Co., in charge of all raw material, heat treatment and testing engineering for small arms including the Browning, light and heavy, machine gun, and the Vickers-Maxim machine gun, '18.
- PEYCKE, A. H. (II) Mgr., Brake Dept., American Steel Foundries, Chicago, Ill., forging shells, miscellaneous steel castings, and railway equipment specialties for foreign and domestic war service.
- PHILLIPS, W. I. (VI) Asst. Commercial Engr., New England Telephone & Telegraph Co., Boston, Mass.
- PILLSBURY, A. C. (I) Sec., Beverly Hills War Savings Society; Lt., Liberty Loan Campaigns; Member, Secret Service Dept., Los Angeles, Calif.
- POWELL, O. D. (XI) Asst. Camp Sec., Y. M. C. A., Camp Syracuse, N. Y., 27 July—29 Sept. '17. See Military Record.
- PROCTOR, J. A. (VI) Chief Engr., Wireless Specialty Apparatus Co., '12-'18, and with American Radio Corp., '18, in charge of radio engr. design and research; designed and had charge of mfr. of radio apparatus for U. S. N.; chose location, installed and equipped, Otter Cliffs Radio Station, Bar Harbor, Maine, for radio communication with England, France, and Italy; valuable research work at this station resulted in invention of a system of static elimination.
- PUGSLEY, EDWIN (VI) Mfg. Engr., in charge of Engr. Dept., Winchester Repeating Arms Co., New Haven, Conn., mfg. rifles, cartridges, primers, and telescope sights for Govt.
- PUSHEE, H. B. (X) Chief Chemist and Dept. Mgr., General Tire & Rubber Co., Akron, Ohio, producing and developing rubber articles.
- *ROBERTS, W. L. (XII) General Mgr., Bethlehem Shipbuilding Corp., Ltd., Fore River Plant, Quincy, Mass. Killed in automobile accident, 20 July '19.
- ROBINSON, BENJAMIN (IV) with Fay, Spofford & Thorndike on Boston Army Supply Base.
- ROBINSON, H. L. (I) Inspector and Adviser in industries of Worcester, Mass., under Fuel Adm., on fuel saving; Mgr., Service Dept., Crompton & Knowles Loom Works.
- ROMER, J. B. (V) Chief Inspector and Chemist, National Fireworks Mfg. Co., West Hanover, Mass., mfg. tracer incendiary bullets for aircraft and rockets, flares and signals for Trench Warfare Section, Ord. Dept.
- RUNEL, R. E. (I) Engr., Lockwood Greene & Co., Engrs., in charge of rebuilding and equipping with machinery the Atlantic Mills (Pacific Mills) for mfr. of tent material for Govt.; Supt., 45 Calibre Colt Dept., U. S. Cartidge Co., Lowell, Mass.

TECHNOLOGY'S WAR RECORD

- SAVAGE, E. C. (II) Asst. Inspector, Ord. Dept., 10 June—15 July '18. See Military Record.
- SCHAFER, C. A. (XIII) Asst. to Naval Architect, Sun Shipbuilding Co., Chester, Pa.; Naval Architect, in charge of Designing Dept., American International Shipbuilding Corp., Hog Island, Pa. (Page 391.)
- SCHREIBER, HENRY (XI) Engr., Edison Electric Illuminating Co. of Boston, supplying light and power to war industries. Refused for service on account of deafness.
- SCHURIG, O. R. (VI) Electrical Research Engr., General Electric Co., Schenectady, N. Y., developing new equipment.
- SCOVILLE, J. H. (IV) Production Engr., Black Rock and Fields Point Works and Moore Plant, Bethlehem Shipbuilding Corp., Ltd., Elizabeth, N. J.
- SELIGMAN, W. J. (III) Mfr., Import Dept., Hartmann Bros. Inc., obtaining raw materials from overseas for war orders.
- SISSON, EDWARD (I) Foreman on steel ship cons., U. S. N., repairing steel ships.
- SMITH, A. N. (I) with Fay, Spofford & Thorndike on Boston Army Supply Base.
- SMITH, F. G. (III) Supervisor, Non-Ferrous Material Inspection, Metallurgical Branch, Inspection Div., Ord. Dept., Washington, D. C., 1 Apr.—1 Dec. '18.
- SMITH, H. A. (II) Dist. Engr., Dept. of Conservation, Fuel Adm., in charge of engns. covering southern New Hampshire.
- SMYTHE, C. B. (I) Asst. to Pres., The Thew Automatic Shovel Co., Lorain, Ohio, mfg. steam and gasoline shovels for Govt.
- SOUTHGATE, D. W. (IV) Engr., du Pont Engineering Co., at Old Hickory Powder Plant near Nashville, Tenn., designing special buildings in Powder Village, 15 May '18; Asst. to Mgr., Requirements Div., U. S. Housing Corp., Washington, D. C., reviewing and recommending licensing of private enterprise building projects, compiling data as to availability and advisability of use of various building materials for projects of U. S. Housing Corp., 15 Sept. '18—15 May '19.
- STANLEY, R. R. (II) State Factory Inspector, State of New Hampshire; Engr., Parker-Young Co., Lincoln, N. H., furnishing airplane spruce; Chairman, Liberty Loan Drive, Lincoln, N. H.
- STEVENS, D. R. (II) in charge of Goodyear Flying Field, later Factory Mgr., Aeronautics Dept., Goodyear Tire & Rubber Co., Akron, Ohio, doing experimental work on observation and dirigible balloons and instructing naval balloon aviators. (Pages 399 and 401.)
- STEWART, O. W. (I) Engr., Manufacturers' Mutual Fire Insurance Co., Providence, R. I., in connection with design and maintenance of fire protection apparatus in munition plants; Expert in Fire Prevention, Fire Prevention Sect., War Industries Bd., Washington, D. C.
- SYMMES, E. M. (V) Asst. Acid Supt., Kenvil, N. J.; Asst. Supt., Bacchus (Utah) Plant; Asst. Chemical Director, Hercules Powder Co., Wilmington, Del., mfg. T. N. T., smokeless powder, and black powder for bursting charges.
- TISDALE, H. R. (V) Chemist and Supt., Dye House, The Brainerd & Armstrong Co., New London, Conn., dyeing silk for Govt.
- TOLMAN, RUTH DUNBAR (Mrs. Mayo) (VII) Bacteriologist, Pierce & Tolman, Chemical and Sanitary Engrs., Charleston, W. Va., in charge of filtration plant supplying water to Naval Ord. Plant, South Charleston; made vaccine for influenza, Red Cross Emergency Hospital.
- TRUE, G. W. (I) Junior Engr., The Panama Canal, Balboa Heights, C. Z., designing pier construction.
- VAN ALSTINE, R. D. (I) Draftsman, and Chief Draftsman, Southwestern Shipbuilding Co., East San Pedro, Calif., designing plant layout, buildings and structural equipment; in charge of surveys and construction materials. Refused admission to 2d Engr. Off. Tr. Camp because of physical disability, June '17.
- VAN TASSEL, E. D., JR. (X) Pres., in charge of production, Van Tassel Tanning Co., Stoneham, Mass., tanned and finished military equipment leather for British, French, and U. S. Govts.
- WADE, N. S. (II) 1st Asst. Engr., U. S. Shipping Bd., Nov. '17—Sept. '18. See Military Record.
- WARNER, W. W. (I) Chairman for Nowata County, Okla., U. S. Boys' Working Reserve; Member, Nowata County War Bd. See Military Record.
- WATERFALL, H. W. (II) Mechanical Engr., Jute Mill and Engineering Works near Calcutta, The Angus Co., Ltd., Calcutta, India, Aug. '17—Aug. '19; mfg. jute cloth and bags, sand bags for Allied Govts., jute mill machinery and special machines for Bd. of Munitions, Calcutta, India.
- WATSON, J. C. (III) Contractor, Canadian Steel Foundries, Ltd., Welland, Ont., making furnace size steel from scrap steel; prospected for gold, nickel and silver ore bodies in northern and eastern Ontario, '15—'18.
- WELLS, P. V. (VIII) Associate Physicist, Bu. of Standards, Dept. of Commerce, Washington, D. C., designing optical instruments; co-operated with Research Div., investigating physical properties of toxic smoke, with Defense Branch, Gas Mask Research Sect. and with Offense Branch, Dispersal Sect., C. W. S.
- WELTMER, NOYES (III) Head Sampler, later Shift Boss, Phelps Dodge Corp., Tyrone, New Mex., producing copper; applied for Officers Reserve Corps but not able to pass physical examination.
- WEST, C. (II) Pres., West & Dennet Co., Chicago, Ill., furnishing cam shafts and screw machine products for Liberty Motors, also various parts for tanks, military tractors, army trucks and 37 mm. tanks guns.

REGISTER OF CIVILIAN RECORDS

- WHITE, P. D. (II) Production Mgr., Babcock & Wilcox Co., New York City, building marine boilers for destroyers, mine sweepers, battleships and Shipping Bd. vessels and stationary boilers for Govt. plants.
- WHITNEY, W. O. (III) Asst. Mgr., later Mgr., Marine Dept., Brunswick Refrigerating Co., New Brunswick, N. J., mfg. refrigerating plants for transports, Emergency Fleet Corp. ships and frozen cargo carrying ships; consulting work for U. S. Shipping Bd. and various shipbuilding companies.
- WILDS, J. L. (II) Representative, War Industries Bd. at war work plants; Member, American Protective League, Chicago, Ill., Bu. of Investigation, Dept. of Justice.
- WILKES, G. B. (II) Asst. Prof. of Industrial Physics, M. I. T., doing experimental work for Govt.
- WILLIS, S. C. (I) Resident Engr. and Supt. of Cons. for Stone & Webster, Boston, Mass., at Rock Island Arsenal, Ill.
- WILSON, W. C. (X) Treas., Andrew Wilson Co., Lawrence, Mass., mfg. ammunition and detonator boxes of copper and clothes lockers of sheet metal for transports.
- WOOD, F. A. (II) Supt., Commercial Point Station, Boston Consolidated Gas Co., Dec. '15—June '18; Asst. Supt., Everett Station; mfg. illuminating gas used by mfrs. of war materials as fuel, also shipment of light oils to govt. plants for extraction of toluol and benzol used in explosives.
- YOUNG, E. M. (I) Asst. Supervising Engr. on Cons., Camp Meade, Md.; Resident Engr. on R. R. Cons., Curtiss Bay Ord. Depot, Md.; Supt. of Cons. of Concrete Trench and Dugout Work, Gunpowder Reservation, Lakehurst, N. J.; Cons. Engr., under Cons. Q. M., Gas Defense Tr. Sch. for Officers, Lakehurst, N. J.; Engr., Field Staff, Picric Acid Plant, Brunswick, Ga.; Asst. Supt. on Cons., Naval Air Station, Key West, Fla.
- ZIMMERMAN, R. E. (IX) Consulting Chemical Engr., War Gas Investigations, U. S. Bu. of Mines; Director of Research and Investigations, Research Laboratory, American Sheet & Tin Plate Co., Pittsburgh, Pa.; Metallurgical Research Engr., Naval Consulting Bd., on problems in connection with materials for submarine deck guns.

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- ABEL, G. H. (II) Chief Engr., Engine Dept. and Chief Inspector, Airplane Dept., Thomas-Morse Aircraft Corp., Ithaca, N. Y.
- AHEARN, W. H. (I) Asst. to Consulting Engr., Public Utilities Comm., Dist. of Columbia, Washington, D. C.; made studies and reports on transportation problems for War and Navy Depts.
- ALLEN, A. F. (XI) Sn. Engr., U. S. Public Health Service, working in communities and areas around many of the southern training camps.
- ALLEN, V. W. (II) Asst. Master Mechanic, The American Brass Co., Torrington, Conn.
- BAILEY, R. T. (I) engaged in general contracting work on industrial plants mfg. munitions after 1 Jan. '18. See Military Record.
- BARKER, F. W., JR. (X) Plant Supt., National Aniline & Chemical Co., New York City, making dimethyl-aniline and diphenylamine for explosives, sneeze gas for Govt. and dyestuff intermediates for Army and Navy uniforms.
- BARNARD, K. H. (V) Supt., Oxide Plant, American Zinc Co. of Ill., Hillsboro, Ill.
- BARRY, J. L. (VI) Asst. Works Mgr., in charge Brass Depts., National Conduit & Cable Co., Hastings-on-Hudson, N. Y., mfg. brass sheets, rods, tubing, and cartridge cups for Army and Navy.
- BAXTER, W. H. (III) Works Chemist on soda ash and ammonium chloride for The Semet-Solvay Co., Syracuse, N. Y.; Operator of Picric Acid Plant, Split Rock Plant of the Solvay Process Co.
- BENSON, H. S. (II) Traveling Supervisor of Inspection, Trench Warfare Material, Ord. Dept., 28 July—10 Oct. '17. See Military Record.
- BOND, T. D. (VI) Asst. to Mgr., New Business Dept., Charles H. Tenney & Co., Boston, Mass. Volunteered for service but refused on account of poor eyesight.
- BOROVVOY, SAMUEL (I) Asst. Mgr. and Mgr., Consolidated Manufacturing Co., Keene, N. H., mfg. horse covers and service coats for Army.
- BRACKETT, H. H. (VI) Engr., Engineering Dept., New York Telephone Co., New York City. Volunteered for service but refused for physical reasons.
- BRANN, B. F. (V) Assoc. Prof. of Chemistry, University of Maine, Orono, Maine; Inst., S. A. T. C.
- BRIGHAM, G. B., JR. (IV) Inspector of Cons., Squantum Plant, Bethlehem Shipbuilding Corp., for Monks & Johnson, Architects and Engrs., '17-'18; Inst., S. A. T. C., M. I. T., Oct. '18—Jan. '19.
- BROWN, K. H. (VIII) Electrical Tester, General Electric Co., Lynn, Mass. See Military Record.
- BROWN, P. J. (IV) with Fay, Spofford & Thorndike on Boston Army Supply Base.
- BUSBY, F. H. (VI) Asst. to Structural Engr., Fay, Spofford & Thorndike, constructors for Army Supply Base, Boston, Mass.
- CALDWELL, F. W. (II) Aeronautical Engr., Air Service, in charge of all propeller engineering, design, research, development, and test work; designed all airplane propellers used on American-built planes in France; built two types of thrustmeter and many other instruments. (Pages 270 and 278.)
- CARY, C. A. (I) Assoc. Supt., Brandywine Works, E. I. du Pont de Nemours & Co., in charge of loading plant for Stokes trench mortar rings.

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- CATHER, J. H. (IV) Purchasing Engr., Aviation Cantonments, Aviation Sect., Sig. C., 8 Mch.—25 Oct. '17. See Military Record.
- CHANDLER, R. W. (formerly L. W.) (VI) Works Engr., Plate Iron Works, Dayton, Ohio, producing shells and machinery. See Military Record.
- CHERRY, M. C. (II) with Fay, Spofford & Thorndike on Boston Army Supply Base.
- COLE, W. G. (I) Safety Engr., Maryland Plant, Bethlehem Steel Co., Bethlehem, Pa.; conducted all Liberty Loan and War Work Campaigns at the works.
- COLEMAN, A. M. (VI) Factory Mgr., The Champion Stove Coal Co., Cleveland, Ohio, mfg. kitchen ranges and stoves for railroads.
- COLLINS, W. L. (XI) Supervising Engr. and Acquisition Agent, Cons. Div., War Dept., supervising construction of Camp Franklin, additions to Camp Meade, and roads at Camp Devens.
- COMSTOCK, R. L. (X) Chemist, Electrochemical Plants, Burgess Sulphite Fibro Co., Berlin, N. H., in charge of electrolysis of brine, evaporation of caustic soda, and mfg. of anæsthetic chloroform.
- COX, R. S. (III) Asst. Shop Supt., Bartlett Hayward Co., Baltimore, Md., mfg. time fuses. See Military Record.
- CUMMINGS, L. T. (VI) Senior Engr., Miller, Franklin, Basset & Co., Consulting Engrs., New York City, supervising the installation of methods designed to increase production and reduce labor requirements in plants mfg. war products.
- CURTIS, F. H. (III) Chemist, The Pyrites Co., Ltd., Wilmington, Del., producing low phosphorous iron sinter and metallic copper.
- DALRYMPLE, P. W. (II) Power Engr., Sparrow's Point Plant, Bethlehem Shipbuilding Corp., Ltd.
- DAVIS, A. R. (II) Purchasing Agent and Production Engr., Stone & Webster, Boston, Mass., procuring materials for arsenal construction, placing contracts for machine and tool work, and supervising production of gun parts.
- DAVIS, C. D. (II) with the American International Shipbuilding Corp., Hog Island, Pa. (Page 391.)
- DAVIS, LEWIS (V) Research Biological Chemist, Parke, Davis & Co., Detroit, Mich., in Serum Laboratory developing production methods for diphtheria and tetanus antitoxins for U. S. and Allied Govts.
- DAVIS, R. W. (X) Adviser and Asst. to registrants under the Draft.
- DE FLOREZ, LUIS (II) designed and constructed a number of toluol plants for Russian and British Govts.; operated British Govt. Plant, Thames Haven, Essex; made experiments on gas masks and flame throwers for British Govt.; Asst. Inspector and Inspector, Naval Construction, in charge of Instrument Sect., U. S. Navy Dept., Washington, D. C., developing new aircraft instruments.
- DIERKS, F. H. (II) Pres., Dierks-Blodgett Shipbuilding Co., building wooden ships for Govt.
- DOWS, C. L. (VI) Electrical Engr., National Lamp Works of General Electric Co., Cleveland, Ohio, mfg. incandescent lamps, flood lights, and X-ray tubes.
- DUNBAR, H. C. (II) 2d Mate on cargo vessels, U. S. Shipping Bd.
- DUYSER, C. A. (XI) Master Mechanic, Simplex Auto Co., until Oct. '17; Aeronautical Engineer, Signal Corps. Jan.—Feb. '18; with Westinghouse, Church, Kerr & Co. at Muscle Shoals, Ala., in charge of all sub-contracts.
- EICHER, A. M. (XI) Engr., for Stone & Webster, on construction of American Ordnance Base Depots in France, Nov. '17; Material Man, Foreman, and Field Engr., Is-sur-Tille, Nov. '17—Apr. '18; material work in Tours, 1 Apr. '18; Foreman, Mehun-sur-Yevres Machine Shop, 15 June; with French Engrs., on installation of turbine boilers at Mazieres Power Plant, Bourges, under direction of Technical Advisory Bd. in Paris, July—Nov. '18. See Military Record.
- ELDRED, C. P. (VI) in charge of course in Electrical Machinery at Navy Co-operative School, Pratt Institute, Brooklyn, N. Y., summer, '17; in charge of Radio Course under direction of Sig. C. spring '18, and course for electricians, U. S. Training Detachment, summer, '18, and in charge Electrical Engr. Course under the S. A. T. C., fall '18, Georgia Institute of Technology.
- FARWELL, J. W., JR. (XI) with Fay, Spofford & Thorndike on Boston Army Supply Base.
- FERRY, R. M. (II) Supt., Toronto Works, Northern Aluminum Co., Ltd., in charge of fabrication of aluminum for military equipment.
- FISHER, T. C. (II) Pyrometric Engr. in Research Laboratories, Norton Co., Worcester, Mass., and Member, South American Bauxite Prospective Party; from May '17—Aug. '19 in British, French, and Dutch Guianas and West Indies exploring and prospecting for aluminum ore to be used in mfg. of artificial aluminous abrasive wheels by Norton Co.
- FOLEY, H. M. (VI) Member, Legal Advisory Bd.; Military Inst. of Draftees, Draft Bd.; Trustee, Hampden Co. Chapter, Red Cross; Promoter and Trustee, Palmer War Chest; Asst. Mgr., Central Mass. Electric Co., engineers for electrification of mfg. plants engaged in production of war goods. Volunteered for service in Engr. C., Ord., and Arty., but rejected as physically unfit.
- FREDRIKSEN, NORMAN (X) Asst. Gas Chemist, Chemical Warfare Sect., American University Experiment Station, Washington, D. C.
- FREEMAN, J. C. (VI) Engr., American Telephone & Telegraph Co., New York City, working on design and construction of long distance telephone lines and cables, some of which were used almost exclusively by the Govt. in war service.

REGISTER OF CIVILIAN RECORDS

- GALE, A. G. (I) Agent in charge of Philadelphia Office of Dierks-Blodgett Shipbuilding Co., Pascagoula, Miss., purchasing material for shipyard to construct 9000-ton steel cargo ships for the Emergency Fleet Corp.
- GERE, W. N. (VI) Head of Shell Drawing and Extrusion Depts., United States Cartridge Co., Lowell, Mass., producing small arms ammunition.
- GLAZE, J. B. (XIV) Research Engr. in charge of electric furnace investigations, Norton Co., Niagara Falls, N. Y.
- GLIDDEN, W. R. (I) Bridge Engr., Executive Head of Bridge Works, Commonwealth of Virginia; work included building and maintenance of bridges between Washington and Newport News.
- GOODWIN, L. H. (III) Mgr., Ely Copperfield Associates, West Fairlee, Vt.; built and operated oil flotation plant for recovery of copper from low-grade pyrrhotite chalcopyrite ore.
- GRAUPNER, M. F. (V) Miner, Butte, Mont., producing copper for U. S. and Allies.
- GREEN, W. P. (I) Civil Engr., Yard Maintenance Dept., Scovill Mfg. Co., Waterbury, Conn., makers of time fuses and three inch shrapnel shells and other brass goods for the U. S., Russian and British Governments.
- HALL, N. A. (VI) Electrical Mechanical Engr., Navy Dept., Bu. of Cons. and Repair, Washington, D. C., engaged in engr. work in connection with ship auxiliary machinery.
- HAMMERSTROM, W. G. (II) General Supt., Lynchburg Foundry Co., Lynchburg, Va., producing pipe and other fittings for powder plants. Application for a commission in the Corps of Engineers practically accepted when armistice was signed.
- HANSON, H. H. (X) Chemical Engr., Bu. of Mines, War Gas Investigation, Washington, D. C., in charge of Div. of Pyrotechnics, developing navy smoke screen, incendiary bombs, and airplane smoke signaling, July—Dec. '17. See Military Record.
- HARGRAVE, J. M. (VI) Pres., The Cincinnati Tool Co., mfg. regular stock tools and some special tools for all government departments.
- HICKEN, G. R. (I) Storekeeper, Remington Arms, Union Metallic Cartridge Co., Bridgeport, Conn., June—Oct. '18. Rejected for military service on account of physical disability, 8 Aug. '17.
- HOOPER, L. S. (II) (VI) Trial Engr., Electric Boat Co., Groton, Conn., in charge of submarine trials for U. S. Govt.; at Vickers, Ltd., in Barrow-in-Furness, England, supervising installation of machinery and running trials in Irish and North Seas on British submarines that were equipped with American machinery, May '18—Feb. '19; Asst. to Engr. in charge of trials U. S. S. O-3, O-4, O-5 and O-6 at Provincetown, Mass., Feb.—June '19 and O-7, O-8, O-9, and O-10 June—Nov. '19.
- HYDE, R. E. (X) Chemical Engr., Plant Development Sect. of Research Div., C. W. S.; transferred to Felt Procurement Sect., Gas Defense Div., C. W. S., developing felt for smoke filter for gas masks.
- JOHNSON, H. A. (II) Master Gauge Expert, Ord. Dept.; Chief Inspector and Testing Engr. on 3" Stokes trench mortar shells and 155 mm. gun carriages, Cleveland Dist.; Asst. Claim Adjuster and Analyzer for Cleveland Ord. Dist. Claims Boards, Jan.—June '19; did research work at beginning of war on malleable cast iron in connection with determining a suitable quality from which to make American hand grenade being perfected at Eastern Malleable Iron Co., Naugatuck, Conn.
- KEBBON, H. E. (IV) Asst. Cons. Mgr., Cantonment Cons. Div., Washington, D. C., 30 May—25 Sept '17; office supervision of construction of eight national army cantonments. See Military Record and page 318.
- *KEMP, H. D. (VI) Supt., British Munitions Co., Ltd., of Verdun, Montreal, Canada, in entire charge of production, operation, and maintenance; First Asst. to Chief of Production Div., Ord. Dept., New York City, Member, Imperial British Munitions Bd. Died, 5 Oct. '19.
- KILMAN, E. C. (VI) Assoc. Member, Legal Advisory Bd., Acconsack Co., Va.
- KIMBALL, M. J. (VI) Switchboard Engr., Traffic Dept., The Bell Telephone Company of Pa., Pittsburgh, Pa., making studies of telephone switchboard requirements, designing additions and arrangements of equipment from a traffic viewpoint.
- LASIER, E. L. (I) Materials Engr., Bu. of Cons. and Repair, Navy Dept., Washington, D. C., directly in charge of materials work which involved problems and questions relating to obtaining of materials, their purchase and inspection; instructions of Navy Dept. that civilian technical personnel should be retained intact during national emergency prevented active military service.
- LAWRENCE, P. R. (X) Metallurgist and Chief Inspector, American Sheet & Tin Plate Co., Gary Sheet Mill, Gary, Ind., mfg. manganese steel sheets for helmets.
- LEWIS, L. G. (II) in charge of team in Red Cross Drive, Bar Harbor, Me.
- LOMBARD, O. C. (VI) Asst. Cons. Engr., New England Telephone & Telegraph Co., Boston, Mass., working on general maintenance and supervision of cons. of toll circuits and routes.
- MacDONALD, H. D. (III) Quarry Supt., American Zinc, Lead & Smelting Co., mining zinc in Tenn., and engaged in exploration work, Ontario, Canada.
- McNEIL, N. T. (I) Designer, Experimental Dept., United Shoe Machinery Corp., Beverly, Mass.; developed machinery connected with making of "Pershing" shoes; adapted a heel compressor to reduce size of Red Cross bandages to a fraction of original size to enable a greater number to be shipped in a given volume.
- MAGUIRE, W. J. (I) (IV) General Supt. of Cons., Torpedo Station, Newport, R. I., May—Sept. '18; General Supt. of Cons. of U. S. Naval Tr. Camp, Newport, R. I., Sept. '18—Oct. '19.
- MARCEAU, E. T. (X) Chief Chemist and Supt., Chicago Factory, The N. K. Fairbank Co., mfg. soaps, soap powders, and dynamite glycerine, Sept. '16—Feb. '18; Mgr., Feb.—Nov. '18.

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- MASON, M. C. (VI) Electrical Engr., Nitrate Div., Ord. Dept. See Military Record.
- MILLS, C. H. (IV) Architectural Draftsman, E. I. du Pont de Nemours & Co., Wilmington, Del., designing buildings for the mfg. of powder, and housing projects.
- MINTON, J. P. (VIII) Section Head, Transmission Branch, Engr. Dept., Western Electric Co., Inc., New York City, having direct supervision of the acoustical problems involved in airplane radio telephony which resulted in development of sound-proof helmets for telephone receivers and of anti-noise telephone transmitter for airplanes; had direct supervision of early development work preliminary to mfr. of ground detectors to detect enemy mining operations at front. (Page 278.)
- MITCHELL, G. W. (II) Chief Draftsman with Remington Arms Co., Bridgeport, Conn., '16-'17; with Ashcroft Mfg. Co., '18; Designer, Lake Torpedo Boat Co., Dec. '18; Head of Dept. of Mech. Drawing, Y. M. C. A. Evening School, and Special Inst. in Shop Mathematics.
- MITCHELL, H. D. (X) Asst. to Chairman of Sub-Comm. on Rubber and Allied Substances, National Research Council; engaged in mfr. of tires and tubes according to Govt. specifications. Not accepted for active military service on account of eyesight.
- MORGAN, A. P. (II) Member of firm, Adams-Morgan Co., designing and mfg. aeroplane parts, radio telegraph apparatus and fire control panels, for U. S. Army and Navy.
- MORROW, C. E. (IV) Chief Draftsman for Stone & Webster, in charge of preparation of drawings on Watertown, Rock Island, and Picatinny Arsenals as well as many industrial plants and public utility improvements.
- MOWRY, F. L. (XI) Cons. Engr., Swift & Company, Meat Packers, Chicago, Ill., engaged in cold storage warehouse construction and buildings for production of various food products.
- MURRAY, W. J. (X) Asst. Gas Chemist, Dept. of Interior, Bu. of Mines, Gas Defense Service. Research on problems of offensive gas defense at American University Experiment Station. Development in laboratory of three important war gases to mfg. stage, 13 Mch.—26 Sept. '18. See Military Record.
- NICHOLSON, ERNEST (I) Supt. of Cons., Cons. Dept., Babcock & Wilcox Co., working on extensions to plants in New Jersey and Ohio for company to meet Govt. program.
- NOYES, J. A. (II) Mgr., Lake Superior Iron and Copper Mining Dist., Sullivan Machinery Co., mfg. mining machinery.
- O'BRIEN, W. G. (X) Chemical Engr., Goodyear Tire & Rubber Co., Akron, Ohio. (Page 400.)
- ODELL, L. G. (XIV) Manager, Crude Rubber Dept., Goodyear Tire & Rubber Co., Akron, Ohio. (Page 401.)
- OTIS, H. N. (II) Inspector in Plant Engineer's Office, Fore River Plant, Bethlehem Shipbuilding Corp., Quincy, Mass. See Military Record
- PARTRIDGE, H. H. (II) Branch Cons. Engr., Firestone Tire and Rubber Co., Akron, Ohio, supervising real estate, buildings and mechanical equipment of branch houses; assisted at Second Draft Registration.
- PAULLIS, G. L. (II) Supervisor of Production Control, Small Arms Sect., Rock Island Arsenal, Ill., organizing work and installing shop systems.
- PERRINE, C. O. (I) Sales Engr., Sullivan Machinery Co. of Chicago, located in San Francisco Branch Office.
- PRATT, J. H. (X) Gen. Supt., The Liquid Carbonic Co., Chicago, Ill., mfg. airplane propellers, rocket boards, and mess tables; designed and manufactured shell filling machines for handling T. N. T. at the Edgewood Arsenal.
- PRIEST, H. M. (I) Research Engr., Engr. Div., A. S. At McCook Field, Dayton, Ohio, developing new methods of stress analysis, designing structural features of airplanes, and investigating ideas submitted to the Govt. by outside parties.
- PULLEN, M. W. (VI) Assoc. in Electrica. Engr., Johns Hopkins University, Baltimore, Md.; Inst., S. A. T. C.
- RANDALL, MERLE (V) Member, Sub-Comm. on Inorganic Chemistry, National Research Council; devoted most of time to researches at the University of California suggested by the National Research Council, and the California State Council of Defense.
- REIMAN, C. K. (X) Consulting Chemist, Gas Defense, U. S. Bu. of Mines, in charge research problems in gas mask design, 1 Apr.—23 Oct. '18. See Military Record.
- REYNOLDS, C. V. (XI) Pres. and General Mgr., Canton Engineering Co., Inc., sub-contractors at Camp Devens and Destroyer Plant at Squantum, Mass., June '17—1 Apr. '18; Branch Mgr., Naval Aircraft Factory at Herreshoff Manufacturing Co., Bristol, R. I., Apr. '18—Feb. '19.
- RHODES, W. A. (VI) Telephone Engr., American Telephone & Telegraph Co., New York City; work included engr. of telephone switchboards for training camps and for overseas service.
- RICHARDS, G. W. (I) Field and Office Engr., Central Div., Erection Dept., American Bridge Co., a subsidiary of the U. S. Steel Corp., Pittsburgh, Pa.
- RICHARDSON, W. E. (I) Supt., Aberthaw Construction Co., Boston, Mass., on construction of munition and shipbuilding plants.
- ROBERTS, W. T. (I) Mgr., Refrigeration Dept., H. W. Johns-Manville Co. of Boston, Mass.; in charge of design, purchase, and installation of refrigerators and refrigerating machines for two hundred and forty-three vessels. See Military Record.
- ROBERTSON, S. R. (III) Asst. Engr., Sturtevant Aeroplane Co., Jamaica Plain, Mass., drying and testing airplane stock.

REGISTER OF CIVILIAN RECORDS

- ROBINSON, G. A. (I) Supervising Draftsman, Public Works, Washington Navy Yard in charge of buildings, quay walls and slips, and power distribution; aided in practically doubling the capacity of the Naval Gun Factory.
- ROBINSON, K. C. (II) Inst., Naval Aviation Detachment, U. S. Shipping Bd., on airplane motors and marine engr. (Page 38.)
- ROHLFFS, W. V. (IV) Production Specialist, Schaw Batcher Shipbuilding Co., San Francisco, Calif.
- ROOT, R. P. (II) Social worker, New York City. Rejected for enlistment on account of physical requirements.
- ROWLEY, C. B. (II) Chem. Engr., American Fork & Hoe Co., Cleveland, Ohio, mfg. bayonets and garden tools.
- SALISBURY, W. R. (II) engaged in mfr. of mattresses for Medical Supply Dept.
- SARGENT, S. C. (XIII) Asst. General Supt. of Hull Cons., American International Shipbuilding Corp., Hog Island, Pa. (Page 391.)
- SCANLON, R. H. (II) Asst. Purchasing Agent, Newport News Shipbuilding & Dry Dock Co., New York City, purchasing machinery and equipment for torpedo boat destroyers and troop-ships, and equipment, buildings, and tools for increasing plant capacity.
- SCHELL, E. H. (II) Industrial Engr., American International Shipbuilding Corp., Agents of U. S. Shipping Bd., Hog Island, Pa.; Special Lecturer in War Emergency Course in Employment Management, War Industries Bd., at Columbia and Harvard Universities. (Page 391.)
- SHORE, J. D. (IV) with General Electric Co., Lynn, Mass., instructing men who did work on submarine detectors.
- SOULIS, H. E. (VI) Transmission Engr., Bell Telephone Co., of Pa., Philadelphia, Pa., handling engr. work in connection with installing telephone plants in Midvale Steel & Ordnance Co., Emergency Fleet Corp. at Hog Island, Bethlehem Loading Co., Woodbury Bag Loading Co., Camp Dix, Merchants Ship Building Co., and Atlantic Loading Co.
- STOBERT, R. C. (VI) Supt., Hardie Tynes Manufacturing Co., Birmingham, Ala., mfg. shells for the Navy and triple expansion marine engines for Emergency Fleet Corp.
- SWENSON, G. A. (IV) Chief Material Clerk, Civilian, Q. M. Cons. Corps., 19 June—19 Aug. '17. See Military Record.
- TARR, E. W. (VI) Supply Sgt., 15th Inf., Mass. State Guard 6 June '17—6 June '19; one month of duty at influenza emergency outdoor hospital camp, Gloucester, Mass.
- TAYLOR, J. I. (XI) Expert Cost Accountant, Aircraft Production, at Akron, Ohio, 25 Mch.—5 Oct. '18; in charge of all finances in connection with balloon contracts of Goodyear Tire & Rubber Co., B. F. Goodrich Co., and Firestone Tire & Rubber Co. See Military Record.
- TOMLINSON, D. A. (I) Recruiting Officer, Recruiting Comm., Citizens' Unit of 1st Regt., Ill. Engrs., May and June '17. See Military Record.
- TORREY, R. M. (XIII) on the Chemical Engr. Staff of E. B. Badger & Sons Co., mfrs. of brass and copper products. (Page 398.)
- TROLAND, L. T. (VII) Research Engr., Kalmus, Comstock & Westcott, Inc., Boston, Mass., working on submarine listening devices; Member, Sub-Comm. on vision and psychological problems related to aviation, National Research Council. (Pages 375 and 306.)
- TULLER, C. L. (VI) General Foreman, Ford Motor Co., Detroit, Mich.; in charge of heat treatment of armor plate for "baby tanks" and Liberty Motor cylinders.
- TYLER, P. M. (III) Special expert, U. S. Tariff Comm. since Apr. '18; Mining Engr. and Metallurgist.
- UPHAM, E. O. (XIV) Efficiency Engr., Planning Dept., U. S. Rubber Co., mfgs. gas masks, Naugatuck, Conn.
- VICKERS, H. B. (II) Mechanical Designer, Illinois Steel Co., Gary, Ind.
- WALKER, L. B. (II) in General Supt's. Office, Lake Torpedo Boat Co., mfg. submarine torpedo boats, for Govt.
- WALLIS, R. P. (I) Civilian Engr. and Expediting Officer, Cons. Div., Ord. Dept., Washington, D. C., 19 Apr. '18—15 Feb. '19.
- WEBBER, C. W. (VI) Statistician, Liberty Mutual Insurance Co., engaged in insurance and accident prevention work in connection with cantonnments and shipyards; engaged in active safety work which tended to prevent accidents and increase efficiency of production.
- WHITE, L. M. (X) Works Mgr., Perth Amboy Chemical Works, Perth Amboy, N. J., producing medical supplies and essential chemicals for U. S. and Allied Govts.
- WHITTLESEY, J. E. (II) Buyer, American International Shipbuilding Corp., purchasing all fabricated pipings for one hundred and eighty ships.
- WILDES, K. N. (I) Div. Foreman, Bridge and Building Dept., Boston & Maine R.R.
- WISEMAN, R. J. (VI) Telegraph Engr., Western Union Telegraph Co., New York City, working on problems of telegraphic transmission; Wire and Cable Engr., National Conduit & Cable Co., Hastings-on-Hudson, N. Y., mfg. copper wire and cables.
- WOLFE, W. S. (X) Experimental Engr., Goodyear Tire & Rubber Co., Akron, Ohio. (Page 400.)
- WOODWARD, C. R. (III) Inspector, Factory Mutual Fire Insurance Co., Boston, Mass., inspecting munition works.

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- ALLEY, W. W. (IV) Chief Draftsman, Asst. Engr., later Chief Engr., Wright-Martin Aircraft Corp. of California, Los Angeles, engr. work on production of airplanes for Bu. of Aircraft Production, U. S. A. (Page 369.)
- ARMSTRONG, D. B., (VII), Civil Adviser on venereal disease work, Newport News, Va., War Dept.; Member, Mass. Comm. on Public Safety; Chairman, Sub-Comm. on Statistics.
- ATWATER, A. R. (VI) Asst. to Chief of Fabrics Sect., Raw Materials Dept., Aircraft Production, Air Service, 4 Mch. '18; coordination of development and distribution of airplane and balloon fabrics. See Military Record.
- BARROWS, W. W. (IV) Draftsman, J. G. White Engineering Corp., field work on Aeronautical Experimental Station, Langley Field, Va., Nov. '17—Aug. '18. See Military Record.
- BARTELE, P. W. (II) Engr. in charge of production, Judson L. Thomson Manufacturing Co., Waltham, Mass., mfg. rivets used in mfr. of slickers, helmets, leggings, harnesses, and auto trucks; designed and built special machinery for handling and setting rivets.
- BERGEN, R. C. (III) made investigations for National Research Council and War Industries Bd.; aided in mfr. of necessary chemicals, General Supply Co., Perth Amboy, N. J.; as Asst. Editor of *Metallurgical and Chemical Engineering*, furnished information to research and mfg. executives.
- BLACKWOOD, F. W. (VI) Asst. Engr., pier and building construction, Panama Canal.
- BLATCHFORD, JOHN (III) Chemical Engr., Mariner & Hoskins Co., Chicago, Ill. C. O., the "J. B.," his own motor cruiser, attached for service to the U. S. N. R. F.
- BONNEY, R. D. (X) Chemist, Bird & Son, East Walpole, Mass., mfg. wall board, roofing, and building papers, for cons. work of army in U. S. and abroad.
- BRETT, C. W. (I) Office Mgr., Dodge Sales & Engineering Co., New York City, which furnished power transmission machinery for ammunition mfrs., made engines for Emergency Fleet Corp., and airplane parts for Dayton-Wright machines.
- BREWER, A. F. (III) Mechanical Engr., American International Shipbuilding Corp., Hog Island, Pa., 5 Nov. '17—13 Aug. '18; prepared estimates for ship machinery cons. and installation for U. S. Shipping Board. See Military Record and page 391.
- BREWSTER, E. W. (II) Asst. Supt., Plymouth Cordage Co., North Plymouth, Mass., mfg. cordage and binder twine.
- BROOKE, B. E. (IV) Architect, in charge design and cons. of housing developments and mill buildings, for the Youngstown Sheet & Tube Co., Ohio, an auxiliary of the U. S. Shipping Bd., producing steel for U. S. and the Allies.
- BRYANT, W. A. (I) Office Engr., acting Deputy District Engr., Bu. Industrial Housing, and Transportation, U. S. Housing Corp., Dept. of Labor, Washington, D. C. Unable to enter service because of poor eyesight.
- BURNHAM, A. E. (VI) represented Lord Electric Co., Newark, N. J., securing prompt deliveries of material for cons. work, in installing electric work in Navy and Munitions Building, Washington, D. C., and at du Pont Bag Loading Plant, Tullytown, Pa.
- BURR, H. A. (I) Structural Engr., Nashville, Chattanooga, & St. Louis Ry., Nashville, Tenn., designing, detailing, and supervising terminal facilities.
- BURRELL, G. N. (II) Asst. Hydrographer, Miami Conservancy District, Dayton, Ohio, cons. work for flood prevention to safeguard war industries in valley.
- CAPEN, G. P. (X) Leather Inspector, Ord. Dept., Sept. '17, inspecting harness, bag and strap leather. See Military Record.
- CARDINAL, A. C. (XI) Sec. and Treas., Third and Fourth Liberty Bond Drives, of the Silk Division in Paterson, N. J.
- CARLSON, H. N. (VI) Inst., School of Military Aeronautics, and Naval Aviation Detachment, M. I. T.; Head of Dept. of Radio-Aerial Observation and Photography. (Page 20.)
- CHAMPLIN, S. H. (V) Asst. Chemist, Joseph Campbell Co., Camden, N. J., mfg. soups, and canned pork and beans; Asst. Purchasing Agent for Belgian Relief Commission.
- CHRISTIE, M. W. (I) Designing, with Navy Dept., Washington, D. C., on various rush building projects; with Monks & Johnson, Boston, in connection with shipbuilding plant at Squantum; with Fav, Spofford & Thorndike on design of Boston Army Supply Base.
- COE, J. P. (X) Experimental Engr., General Laboratories, New York City, and Naugatuck (Conn.) and Providence factories of U. S. Rubber Co., doing development work in connection with gas masks for Army and Navy.
- COGAN, P. V. (II) Chief Engineering Computer, Bethlehem Shipbuilding Corp. Ltd., Bethlehem, Pa., in charge of calculations made in building engines for war and merchant vessels.
- COHEN, J. H. (X) Plant Mgr., American Glue Co., Boston, Mass., mfg. liquid glues, fertilizer and other by-products and materials used for mfr. of gelatine for aeroplane photography.
- CONANT, A. D. (II) Telephone Equipment Engr., in charge of specifications for changes or additions to Central Office telephone equipment, New England Telephone & Telegraph Co.
- CURRIER, H. S. (II) Asst. Engr., Aircraft Division, Cadillac Motor Car Company.

REGISTER OF CIVILIAN RECORDS

- CUSHING, B. L. (II) Asst. Engr. (Physicist), Bu. of Standards, Dept. of Commerce, Washington, D. C., making tests of materials for War and Navy Depts.
- CUSTER, L. L. (II) Pres. Custer Speciality Co., mfg. Custer statoscopes, bomb release mechanisms and experimental aeronautical instruments.
- DAVIS, E. W. (VI) Asst. Elect. Engr., Simplex Wire & Cable Co., Camoridge, Mass., mfg. electrically balanced submarine cable, insulated wires and cables for war work.
- DENKINGER, G. M. (VI) Research Aeronautical Engr. and Inst. in Aeronautics. M. I. T., in charge research M. I. T. Aerodynamical Lab., testing model machines and component parts; detailed at intervals to Research Dept., Engr. Div., A. S., McCook Field, Dayton, Ohio, in connection with performance of full-size machines. (Page 26, 27 and 270.)
- DEY, K. VAN R. (I) Member, Liberty Loan Comm. of New England, organizing, and allotting quotas.
- *DONALD, E. D. (VI) killed in Toronto, Canada, 26 June '18; refused for military service on account of poor eyesight. Engr., Pittsburgh Cable Co., '15; Supt. of Electricity, British Munition Plant, Toronto, Canada, '17-'18. (Page 366.)
- DOWNS, D. V. L. (II) Engr., E. I. du Pont de Nemours & Co., constructing buildings for Nitric Acid Plant at Hopewell Gun cotton Plant, Va., Dye Plant, Deepwater Point, and High Explosives Plant, Gibbstown, N. J. (Page 357.)
- EDISON, CHARLES (IX) Chief Operating Ex., Thomas A. Edison Industries, Orange, N. J., mfg. bomb sights, booster casings, adapter plugs for trench mortars, storage batteries, etc.
- EVANS, F. J. (XI) Office of the Engr. of Structures, Boston & Maine R. R.
- FARAGHER, P. V. (V) Consulting Chemist, Bureau of Mines at University of Kansas, doing research work on helium for balloon gas.
- FARWELL, J. B. (II) Works Mgr., American Ammunition Company, New York, and Packard Fuse Co. and Canadian Standard Products, St. Catharines, Ontario, mfg. and assembling British time and percussion fuses for artillery ammunition, and American percussion fuses and adapters.
- FELLOWS, O. B. (VI) Vice-Pres. and General Mgr., Ideal Wrapping Machine Co., Middletown, N. Y., fabricating armor plate for guns and tractors.
- FESSENDEN, H. P. (I) Structural Squad Chief, Stone & Webster, in charge of design and drafting for structural steel work shops at Watertown and Picatinny Arsenals, the T. N. T. plant for Semet-Solvay Company, and detail plans and structural details of the American Ordnance Base Depot in France.
- FIANSBURG, P. L. (VI) Safety Engr., later in charge Efficiency and Safety Depts., E. I. du Pont de Nemours & Co., Haskell (N. J.) Plant; made special safety survey, Picatinny Arsenal, Dover, N. J. (Page 359.)
- FRANKLIN, P. J. (IV) Civilian, attached to Engr. Corps on special service, Washington, D. C., 1 Oct. '17; A. E. F., G. H. Q., Chaumont, 21 Nov. '17-17 Feb. '19.
- FREEMAN, R. M. (VI) Supervising Engr., Bu. of Yards and Docks, Navy Dept., 22 Nov. '17, in charge of design and construction of Erie Forge & Steel Company, Erie, Pa., mfg. destroyer guns and shafting; Forge Plant for Pollak Steel Co., Cincinnati, O., mfg. destroyer shafting; Heat Treatment Plant for Allis-Chalmers Co., Milwaukee, Wis.; housing development for General Electric Co., Erie, Pa.; in charge of design and cons. of Armor and Gun Forging Plant, U. S. Naval Ordnance Plant, South Charleston, W. Va., June '18.
- GANN, J. A. (X) Research Chemist, Dow Chemical Co., Midland, Mich., working on research and process development of phenol and cellulose acetate.
- GERMAIN, E. B. (II) General Mgr., Moore Plant, Bethlehem Shipbuilding Corp. Ltd., Elizabeth, N. J.: transferred to Harlan Plant, Wilmington, Del., Dec. '18.
- GLIDDEN, H. O. (IV) Asst. Mgr., Technical Dept., Carr Fastener Co., Cambridge, Mass., mfg. Lift-The-Dot and Durable fasteners used on cartridge belts, canteen covers, gas mask knapsacks, first aid pouches and breech lock covers.
- GOTHERMAN, C. W. (VI) Asst. Mgr. of Village Store, (operated by U. S. A.), later Price Setter for all commissary sales, Govt. Explosive Plants, (du Pont Engr. Co., Agents), Old Hickory Works, near Nashville, Tenn.
- HALL, L. F. (IV) Draughtsman, Supple-Ballin Shipbuilding Corp., Portland, Ore., Aug.-Dec. '18.
- HAMILTON, K. D. (II) Mech. Engr., Geo. E. Keith Co., in charge of new cons., power plants and maintenance of ten factories mfg. army shoes.
- HARMON, G. E. (VII) Asst. Professor of Hygiene, School of Medicine, Western Reserve University, Cleveland, Ohio; also taught special Red Cross classes.
- HARRINGTON, HEISLER (X) Gun cotton Supt., and later General Acid Supt., at the Hopewell (Va.) plant, E. I. du Pont de Nemours & Co. (Page 360.)
- HASTINGS, J. M., JR. (X) Chief of Toluol Branch, Inspection Div., Explosives Sect., Ord. Dept., N. Y. District Office, June '18, in charge of refining and inspection of toluol and benzol. See Military Record.
- HESSION, J. H. (I) District Mgr., Corrugated Bar Co., Boston, Mass.; distributed reinforcing steel bars for essential construction.
- HIRST, A. E. (V) Chief Chemist and Asst. Supt., American Printing Co., Fall River, Mass., dyeing and finishing uniform, slicker, tent and airplane cloths for U. S. and Belgian Govts.

TECHNOLOGY'S WAR RECORD

- HORGAN, P. D. (IV) Consulting Architect, Kearns Construction Co., on Boston Army Supply Base; Architect and General Supt., Boston College S. A. T. C. Camp; with Godley, Haskell & Sedgwick, New York City, preparing scheme for Naval Ordnance Development, Charleston, W. Va.
- HORSCH, W. G. (XIV) Electrochemist, War Gas Investigations, Bu. of Mines, American University Experiment Station, Washington, D. C., working on development of an electrolytic process for production of sodium permanganate. See Military Record.
- HOYT, L. B. (I) Resident Engr., Mass. High Comm. in charge of construction of State Highway, Ayer, Mass., 17.
- HOYT, L. F. (V) Chemist, Larkin Co., Buffalo, N. Y., in charge of General Research Laboratory, research, and control of processes for mfr. of soaps for govt. contracts; worked on ointment for protection against gas and on mfr. of an anti-dimming compound for use in gas masks.
- HUTCHINSON, FRANKLIN, JR. (X) Chemist, Western Electric Co. Inc., New York City, working on chemical problems on telephone and radio apparatus for war use.
- ISENBERG, J. M. (XI) Draftsman, Construction and Planning Dept., Charlestown Navy Yard, Mass. Took intensive course in Naval Architecture at M. I. T.
- KATZENSTEIN, L. L. (VI) Head of Mechanical Laboratory, Norton Company, Niagara Falls, N. Y., developing suitable abrasives, and methods for production of the Liberty Aero-Motor; assisted other concerns in changing over to war work in production of transport equipment
- KELLY, P. V. (XI) enlisted in Balloon Div., Aviation Sect., Sig. C., 3 Jan. '18, for training as balloon pilot, O. T. C. Not called to service. Designing Engr., Morris Knowlts, Inc., Pittsburgh, Pa., on war emergency housing projects.
- KENNEY, A. W. (X) Jr. Chemical Engr., War Gas Investigations, Bu. of Mines, American University Experiment Station, research on gas warfare. See Military Record.
- KNIGHT, I. W. (VI) Elec. Engr., General Fire Extinguisher Co., Providence, R. I., doing research and development work for war purposes.
- LANE, F. W. (X) Inst., Organic Chemistry, Yale University, New Haven, Conn. Rejected for military service.
- LANNING, J. G. (II, VI) Asst. to Vice-Pres., Detroit Lubricator Co., handled research and development work on mfr. and use of lubricators; mfg. accessories for nine cylinder, rotary LeRhone engines built by Union Switch & Signal Co., Swissvale, Pa.; developed a macline used in mfr. of Zenith carburetors for Liberty motors. Rejected for military service because of defective eyesight. (Page 372.)
- LAWRENCE, H. M. (III) Metallurgist, Kennecott Copper Corp., Latouche, Alaska. See Military Record.
- LEONARD, R. E. (VI) Telephone Engr., American Telephone & Telegraph Co., New York City; worked out problems relating to reduction of interference in telephone circuits due to presence of adjacent power and other telephone circuits.
- LESHER, R. A. (IX) Office Mgr., Sect. on Co-operation with States, Council of National Defense, Washington, D. C., 23 May—1 Nov. '17; Sec., Board of Appraisal, War Dept., appraisal of Bush Terminal, New York City, 11 Feb. '18—15 Jan. '19.
- LEWIS, MALCOLM (VII) Asst. Epidemiologist, State Dept. of Health, New Jersey; sanitation of extra-cantonment zone surrounding Camp Dix, N. J. See Military Record.
- LOVELL, J. W. (VI) Electrical Engr., Collyer Insulated Wire Co., Pawtucket, R. I., supervising mfr. of insulated wire, and "outpost wire" for Govt.
- LOWELL, W. E. (VI) Boat Mfr., mfg. dories for fishing fleets, patrol craft for Govt.
- MacDONALD, EFFIE L. (V) Pathologist, Waterbury Hospital, Waterbury, Conn.; Member, Public Health Comm., Women's Comm. for National Defense.
- MacKINNON, J. C. (VI) Asst. to Pres. of Academic Bd., School of Military Aeronautics, M. I. T. (Page 14.)
- MANGAN, E. H. (II) Asst. Engr., Asst. Supt., later Plant Engr., Norton Co., Niagara Falls, N. Y., mfg. abrasives.
- MERRILL, M. W. (XIV) Engr., Chile Exploration Co., Chuquicamata, Chile, producing copper. See Military Record.
- MORRISON, ALEX. (X) Asst. Chemist, American Woolen Co., Lawrence, Mass., testing dyestuffs for army and navy cloths and blankets, and general textile chemistry.
- MORTON, F. B. (X) Chief of Acid Department, O'Bannon Corp., West Barrington, R. I., mfg. pyro cotton.
- MURDOCK, F. D. (I) Factory Supt., Buffalo Weaving & Belting Co., N. Y., mfg. army webbings.
- NASON, D. V. (XIV) Member of firm, Helburn Thompson Co., Salem, Mass., mfg. army gloves for Q. M. Dept., and sheepskin jerkin leather for mfrs. of army jerkins. Rejected for military service as physically unfit.
- NELSON, A. P. (II) Machinist Foreman, Merchant Shipbuilding Corp., Harriman, Pa., agent of Emergency Fleet Corp., U. S. Shipping Bd., boring out stern frames, and installing stern tubes and shafting on merchant ships.
- NICHOLS, R. B. (I) Asst. Project Mgr., Hosp. Sect., Bu. Yards and Docks, Navy Dept., Washington, D. C., '17—'19; on projects in connection with cons. of naval hospitals at home and abroad.
- NORTH, R. H. (IV) Chief Clerk, du Pont Fabrikoid Co., Fairfield, Conn., mfg. govt. gas protective cloth, for trench suits.
- O'HARA, JOHN, rejected for military service on account of ill-health.

REGISTER OF CIVILIAN RECORDS

- O'REILLY, T. A. (I) Prof. of Surveying and Map Making, S. A. T. C., St. Louis University, Sept. '18.
- ORR, S. W. (I) Designing Engr., New England Structural Co., on Bethlehem Shipbuilding Corp. buildings at Buffalo, N. Y., Providence, R. I., and Squantum, Mass.; Designing Engr., Fay, Spofford & Thorndike, designing and in charge of construction of plans for Wharf Shed, Q. M. Terminal, South Boston, Mass.
- PARDEY, G. R. (VI) Engr., Service Dept., Westinghouse Electric & Mfg. Co., Boston, in charge of erection and trouble work in New England district.
- PARKER, H. S. (II) Inst., Gas Defense, C. W. S., 5 Sept. '18.
- PASTENE, A. J. (X) Works Mgr., Chemical Co. of America, Springfield, N. J., mfg. materials for airplane dope. Refused for military service because of physical disability.
- POOR, N. H., 2d (X) Supt., Nathan H. Poor & Co., Peabody, Mass., mfg. sheep leather.
- POWERS, SIDNEY (XII) Asst. Geologist, Oil and Gas Sect., U. S. Geological Survey, to June '18. See Military Record.
- PRENTICE, H. E. (II) Treas., The Prentice Co., Norwich, Conn., mfg. top rolls (necessary repair supply), for cotton mills working on govt. orders.
- RAND, F. L. (IV) Sec., Y. M. C. A., Fort Oglethorpe, '17-'18.
- READY, W. A. (VI) Factory Mgr. and Director, National Co., Boston, Mass., mfg. parts for Burgess Aero Co., for navy planes, and thread gauges for army ordnance inspection work; invented and mfr. two new types of I Beam and Channel Clamps for hanging wire, pipe and lighting systems in American Ord. Base Depots, Mehun and Bourges, France.
- REED, K. W. (II) Mgr., Small Tool Sales Department, The Warner & Swasey Co., Cleveland, Ohio, supervising layout and erection of machines for a new department producing panoramic, musket, and naval gun sights for Govt.; in charge of Apprentice School; Precinct Capt., Red Cross, War Chest, War Savings Stamps and Liberty Loan Campaigns.
- REYBURN, T. R. (II) on local Draft Bd., St. Louis, Mo. See Military Record.
- RICH, F. D. (X) Asst. Sales and Advertising Mgr., Crescent Belt Fastener Co., New York City, mfg. supplies for govt. use in arsenals, munition works, and shipyards.
- RICHARDSON, L. W. (II) Office Mgr., Naval Operating Base, Hampton Roads, Va., for H. P. Converse & Co., Boston, Mass., building pile and timber bulkheads, piers for submarines, timber breakwaters, seaplane runways, hangars, and a marine railway, 7 Nov. '17, to date (Oct. '19).
- RIDER, R. O. (II) Asst. Purchasing Agent, J. B. Williams Co., Glastonbury, Conn., mfg. sag paste, an anti-gas preparation for use overseas.
- RUSSELL, J. G. (II) Inst., Marine Engineering, Post Graduate School, Naval Academy, Annapolis, Md.; Inst., Marine Engineering School, U. S. Shipping Bd., Baltimore, Md.; Superintending Naval Constructor for Navy Dept., on submarine chasers.
- SAGE, N. M. (I) Asst. to Supt., Hull Dept., Bethlehem Shipbuilding Corp., Ltd., Squantum Destroyer Plant, Squantum, Mass.
- SAMPSON, G. B. (II) Asst. Inspector of Ordnance at large, later Chief Army Inspector, Ord. Dept., Yale & Towne, Stamford, Conn., mfg. ordnance material for Govt.
- SAMPSON, R. D. (III) with American Cyanamid Co., Niagara Falls, Ont., until July '18; Detail Supt., Cons. of Lime Nitrogen Oven Room and Supt. Lime Oven Room, Air Nitrates Corp., Muscle Shoals, Ala., July '18—Mch. '19.
- SHAW, H. G. (II) Member, Engr. Div., Sargent & Co., New Haven, Conn.; Foreman, making metallic links for machine-guns, later, training to make 30-caliber shells, at Winchester Repeating Arms Company.
- SHEDDEN, J. B. (IV) Inspector, Secret Service Div., Dept. of Justice, May—Nov. '17. See Military Record.
- SHINKLE, S. D. (V) Asst. Chem. Engr., American University Experiment Station, Bureau of Mines, Washington, D. C., testing absorbents against toxic gases. See Military Record.
- SHOUB, H. L. (VII) Sn. Bacteriologist, later Technical Asst., U. S. Public Health Service, Washington, D. C.; worked on extra-cantonment sanitation.
- SICKELS, G. H. (II) with Pierce Arrow Motor Car Co., Buffalo, N. Y., May '18—May '19.
- SMITH, A. P. (VI) Carpenter, American Woolen Co., Lawrence, Mass.
- SPICER, A. W. (X) General Supt., Pyralin Div., E. I. du Pont de Nemours & Co., Wilmington, Del., producing transparent pyralin for gas mask eye pieces, special containers for trench mortar and 155 mm. propellant charges and other special-use containers for Ord. Dept.
- STERN FRANCES, (V) Director of Dept., Food Conservation, under U. S. Dept. of Agriculture, Mass., June '17—Oct. '18. See Military Record.
- STURTEVANT, A. P. (VII) Bacteriologist in charge of Bee Disease Investigations, Bureau of Entomology, Dept. of Agriculture, Washington, D. C. Armistice cancelled appointment to Sn. C., effective 16 Nov. '18.
- TAYLOR, E. N. (XIV) Process Engr., Winchester Repeating Arms Co., New Haven, Conn., increasing production and reducing cost of producing tools for mfg. guns and ammunition.
- TERRY, P. B. (X) Supervisor, high explosive mfr., E. I. du Pont de Nemours & Co., Wilmington, Del.; in charge of production of ammonia from cyanamide nitrogen, and research work on production of a stabilizer for nitrocellulose.

TECHNOLOGY'S WAR RECORD

- THOMAS, B. F., JR. (VI) Mech. Engr., United Railways Co. of St. Louis, Mo., designing utility cars and equipment. Rejected five times for military service because of heart murmur
- THOMPSON, H. H. (VI) Asst. Insp. of Electrical Material, Office of Inspector of Machinery, U. S. N., Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pa., inspecting electrical apparatus for destroyers, submarines and battleships.
- THOMPSON, R. C. (X) Asst. Supt., Avon Sole Co., Avon, Mass., and at Hood Rubber Co., Watertown, Mass., mfg. rubber footwear for Army and Navy.
- TIRRELL, H. S. (X) Master Mechanic and Chemical Engr., L. Q. White shoe Co., Bridgewater, Mass., in charge of mechanical plant and chemical work, including waterproofing for army and navy shoes.
- TOLMAN, E. M. (XI) Supt., Red Cross Emergency Hospital during influenza epidemic, caring for soldiers; Chief Engr., West Virginia State Dept. of Health, in charge of Filtration Plant, Charleston, W. Va.; investigated sanitary conditions of Kanawha Valley for U. S. Public Health Service for bettering health conditions around Naval Ord. Plant; Member, American Red Cross Relief Commission to Guatemala, Feb.—June '18.
- TREMIERE, B. B., Jr. (III) Assayer, Chino Copper Co., Hurley, N. M.
- TULLAR, R. J. (II) Chief Draftsman, Naval Aircraft Factory, League Island Navy Yard, Philadelphia, Pa., preparing plans for navy flying boats for submarine patrol work.
- VOGEL, ANDREW (IV) Engr., in charge of building cons., General Electric Co., Bloomfield, N. J., and Philadelphia, Pa.; Asst. Supt., Dept. of Grounds and Buildings, Schenectady, N. Y.
- WALSH, J. V. (I) Senior Structural Engr., Interstate Commerce Commission, Everett, Mass., making bridge inventories.
- WARD, M. H. (XIV) Asst., Civilian Personnel, St. Louis Office, Ord. Dept., June '18. See Military Record.
- WEISS, F. C. (VI) Supt. of Cons., Alabama Power Co., Birmingham, Ala., in charge of construction of high tension lines and sub-stations, including ninety miles of 110,000 volt transmission line from Gorgas to Sheffield, Alabama. (Page 376.)
- WEMPLE, H. R. (X) Gas Mask Inspector and Supervisor of gas mask mfr., American Can Co., Brooklyn, N. Y., under Bu. of Mines, 1 June—15 Aug. '17. See Military Record.
- WETHERBEE, C. P. (VI) Engr., Bell Telephone Co. of Pa., in charge of engr. work for telephone switchboard, equipment in shipyards, Govt. Depts. and munition plants in and around Philadelphia.
- WHITE, BENJAMIN (I) Designing Engr., with The National Engineering Corp., on layout and construction of The Atlantic Shipyard, Portsmouth, N. H., and with Lockwood, Greene & Co., on The Atlantic Heights Housing Development.
- WHITMAN, P. G. (III) Engr., Pike Hill Copper Mines; Asst. Engr., Fay, Spofford & Thorndike, Boston Army Supply Base, Boston, Mass., in charge of engineering payrolls, costs and supplies.
- WOODWARD, J. B., JR. (II) Engr. in charge of Estimating Division, Engr. Dept., Newport News Shipbuilding & Dry Dock Co.; assisted in design and testing of propelling machinery for cargo vessels, Emergency Fleet Corp., and for destroyers for Navy.
- WRIGHT, L. E. (XIV) Chem. Engr., Bu. of Mines, Washington, D. C., 17 Sept. '17—18 Oct. '18, doing development and research work on gas defense equipment and incendiary offensive ordnance; worked out details of aerial drop bomb. See Military Record.
- WRIGHT, R. K. (VI) Asst. Supt., later Supt., Electrical Dept., Eddystone Ammunition Corp., Dec. '15; Asst., later Electrical Engr., Baldwin Locomotive Works, Oct. '17; in charge of construction and maintenance of electrical equipment in ammunition and locomotive shops.

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- ABBOTT, L. R. (VI) Machine Gun Inspector and Asst. Inspector of Ord. Material, Ord. Dept.; Machine Gun School, Springfield Armory, Mass., 14 June '17; Inst. in Machine Gun School, Camp Kearney, Calif., 3 Sept. '17—5 Mch. '18; in charge of inspection of cartridges, under commissioned officer, Western Cartridge Co., Alton, Ill., 11 Mch. '18—18 Jan. '19.
- AFPEL, H. A. (VI) Engr., American Telephone & Telegraph Co., New York City, applying multiplex telephone developments of company to meet increased demands of war service.
- ALDRICH, H. R. (III) Statistician, Non-Ferrous Metals Sect., Raw Materials Div., War Industries Bd., Washington, D. C., Nov. '17—July '18. See Military Record.
- ATWOOD, F. C. (XIV) Research Engr., Kalmus, Cornstock & Westcott, Inc., Boston, Mass., working on problem in production of artificial abrasives; assoc. with research work on submarine detection, Naval Sub-Station 3947.
- BARTLETT, L. D. (III) Metallurgist, later Mill Engr., Nicholson File Co., Providence, R. I., mfg. files; also working on problems of furnace design, heat treatment and general engineering.
- BATES, R. D. (XI) Asst., in charge of sanitation, for Morris Knowles, Inc., at Camp McClellan, Ala.; in charge temporary sanitation during cons. of U. S. Govt. Explosives Plant "C," Nitro, W. Va., for the U. S. Public Health Service; in charge of sanitation under Ord. Dept., Apr. '18. See Military Record.
- BENEDICT, P. F. (I) Inst., S. A. T. C., Co-operative School of Engineering, Northeastern College, Boston, Mass.

REGISTER OF CIVILIAN RECORDS

- BENT, H. T. (XIII) Inspector, Office of Asst. Supt., Hull Construction, Newport News Shipbuilding & Dry Dock Co., Newport News, Va., supervising progress on various ships built for U. S. N., since July '15.
- BLACK, L. B. (II) Canadian Mgr., Sullivan Machinery Co., Ltd., Toronto, selling, installing and erecting drills and air compressors in shipbuilding plants, munition factories and mines.
- BLAKELEY, C. W. (II) Consulting Mechanical Engr., Power Specialty Dept., H. W. Johns-Manville Co., Boston, Mass., working on insulation and power specialties for former German liners, Navy Yard, Watertown Arsenal, Camp Devens, and munitions plants.
- BOWMAN, H. L. (I) Asst. Engr., Philadelphia & Reading Ry Co., in charge of supervision of cons. of Engine Terminal at Philadelphia.
- BOYD, E. M. (II) Asst. Supervisor, Carney's Point Plant, E. I. du Pont de Nemours & Co., working on solvent recovery in the mfr. of smokeless powder.
- BROOKS, N. E. (II) New York Mgr., The Wyoming Shovel Works, supplying shovels and scoops for railroads and A. E. F.; an official photographer, 3d Liberty Loan.
- BROWN, L. N. (X) Metallurgist, in charge of production and heat treating, American Brake Shoe & Foundry Co., Erie, Pa., mfg. 155 mm. shell, 9.2" British shell and 155 mm. howitzers.
- BURDICK, J. P. (II) Advertising Mgr., and in charge of Foundry and Gear Dept., Sales, Brown & Sharpe Manufacturing Co., Providence, R. I., mfg. machinists' tools, gears and iron castings; graduated from U. S. Shipping Bd. School for Marine Engrs., M. I. T.
- BURNS, C. H. (X) Asst. Chemical Engr., American University Experiment Station, Washington, D. C. See Military Record.
- CALLAHAN, C. J. (XI) Engr. on cons. of two reservoirs for Bu. of Yards and Docks, Newport, R. I.; Supervisor of Cons., Ord. Dept., in charge of outside work on cons. of remount station and embarkation camp, Charleston, S. C. See Military Record.
- CALLAHAN, T. H. (I) Asst. Cons. Engr., later Supervising Engr., Bu. of Yards and Docks, Navy Dept. working on steel plant cons. and design.
- CAMPBELL, ROSS (X) Acting Mgr., Dept. of Tests, American Writing Paper Co., Holyoke, Mass., doing research work on gas defense problems in co-operation with Gas Defense Service and Paper Sect., Bu. of Standards.
- CHATFIELD, C. H. (II) Inspector, Waterbury Tool Co., Waterbury, Conn., ord. material for U. S. N. See Military Record.
- CLEVERLY, F. C. (XIII) Engr., on merchant ships to many parts of the world, Feb. '14—Mch. '18; Asst. Supervisor, New York Dist., U. S. Shipping Bd., Mch.—Dec. '18; Performance Engr., Houston, Texas.
- CLISHAM, O. C. (X) Chemical Engr., Lowell (Mass.) Gas Light Co., June '14—Jan. '18; Providence (R. I.) Gas Co., supervising mfr. of coke and by-products, Jan. '18—July '19.
- CONKLIN, O. E. (VIII) Optical Engr., Bausch & Lomb Optical Co., Rochester, N. Y., working on computation and inspection of optical systems.
- CONNOR, W. S. (III) Mine Engr., Cave Engr. and Mine Foreman, Braden Copper Co., Rancagua, Chile.
- CORNEY, C. A. (VI) Electrical Engr., Stone & Webster, Boston, Mass., working on cons. and design of electric generating stations supplying power to war industries.
- COVITT, PHILIP (V) Chemist, Chemical Laboratory, Navy Yard, New York City.
- CRANKSHAW, ALDEN (X) Metallurgist, Spelter Dept., New Jersey Zinc Co., carrying on experimental work to improve operations.
- CROMMETT, C. F. (II) General Mgr., Liquid Fuel & Gas Co., Elizabeth, N. J., engaged in liquefaction and separation of gases, especially of aerial gases with recovery of power by turbine method. Asked by National Research Council to develop the turbine method as rapidly as possible to aid the mfr. of helium for aerial navigation.
- CURRIER, L. W. (III) Technical Expert, Div. of Statistics, Council of National Defense, Washington, D. C., Jan.—Aug. '18. See Military Record.
- CURRIER, P. M. (VI) Electrical Engr., General Office, Engr. Dept., General Electric Co., Schenectady, N. Y., working on sub-stations for mobilization camps and power stations for munitions plants. See Military Record.
- DALE, F. A. (I) with Fay, Spofford & Thordike, Boston Army Supply Base.
- DANFORTH, H. J. (VI) Dist. Engr., The Delaware & Atlantic Telephone and Telegraph Co., Atlantic City, N. J.
- DEAL, H. A. (IV) Architect, Fred T. Ley & Co., Inc., working on design and cons., Camp Devens (Mass.) Machine Gun Shop of Merlin-Rockwell Corp., Ammonium-Nitrate Plant at Perryville, Md., and Arsenal Buildings, Watervliet, N. Y.
- DE WITT, A. B. (X) Production Engr., later Production Mgr., Machinery Scientific Sect., Lake Torpedo Boat Co., Bridgeport, Conn., Oct. '15—Nov. '17; supervision of building and equipping yards, Eastern Shore Shipbuilding Corp., Shartown, Md., Nov. '17—June '19.
- DICKSON, R. H. (X) Toluol Expert, Civil Service, Ord. Dept., 5 Nov.—24 Dec. '17. See Military Record.
- DOUGLAS, D. W. (II) Chief Civilian Aeronautical Engr., Air Service, Washington, D. C., until Nov. '17; Chief Engr., Glenn L. Martin Co., Cleveland, Ohio; designed the Martin Bomber which was accepted by Air Service as standard night bomber. (Page 371.)

TECHNOLOGY'S WAR RECORD

- EASTER, J. W. (VI) Cons. Engr., Mt. Vernon Woodberry Mills, Inc., Owings Mills, Md., mfg. cotton duck.
- EMERSON, ALBERT (II) Inspector and Machinist, Ord. Dept., Studebaker Co. Plant, South Bend, Ind., mfg. forged steel treads for "Mark VIII" Road Machines (caterpillar tanks) and rubber-tired artillery wheels.
- FALES, D. A. (II) Head of Aeronautical Dept., U. S. Naval Aviation Detachment, School of Military Aeronautics and S. A. T. C. at M. I. T.
- FAUNCE, L. D. (IV) Plant Engr., The Bayonne Steel Casting Co., Bayonne, N. J., working on steel castings for govt. use.
- FAVORITE, R. J. (II) Leading Draftsman and Engr., The Electric Boat Co., and New London Ship & Engine Co., Groton, Conn., working on design, inspection and testing of Diesel heavy oil engines for U. S. submarines.
- FICK, O. W. (II) Acting Chief Engr., The Liquid Carbonic Co., Chicago, Ill.; designed and built for the Govt. a machine for filling shells. (Page 397.)
- FISH, J. P. (VI) Electrical Engr., Stone & Webster, Boston, Mass., for Rock Island Arsenal, and American Ord. Base Depot in France. See Military Record.
- FISK, E. M. (II) Engr. Asst., Western Union Telegraph Co., New York City; installed Multiplex Printing Telegraph, City College of New York for training of Sig. Corps.
- FRANK, E. N. (X) Research Chemist, in charge of chemical testing, Washburn Crosby Co., Minneapolis, Minn., mfg. flour.
- GARDNER, H. L. (XIII) Draftsman and Computer, Engr., Div., Cannon Sect., Office of Chief of Ord., Washington, D. C., figuring ballistics on guns, including a proposed 18" gun, a long range gun and several British and French guns and howitzers built in this country. See Military Record.
- GAZARIAN, H. T. (II) Designing and Experimenting Engr., Fessenden Engineering Corp., Boston, Mass., doing experimental work on a new type of Diesel Oil Engine for submarines for U. S. N. Not allowed to enter active service until work on engine was completed. See Military Record.
- GIFFELS, J. E. (II) Resident Engr., Arlington Mills, Lawrence, Mass., producing cloth for Army and Navy.
- GINSBURG, S. M. (X) consultation and investigation work on war-chemical problems; work on dyestuffs, and explosives.
- GOETH, R. C. (IV) Chief Draftsman, Beaumont Shipbuilding & Dry Dock Co., Beaumont, Texas, interpreting the drawings and specifications of the Shipping Bd. on the Ferris Type of wooden ship; helped lay out two shipyards and designed two schooners which were taken over by the Govt.
- GOLDENBERG, MORRIS (II) Asst. to Chief Draftsman, Airplane Engr. Dept., Bu. of Aircraft Production, Washington, D. C.; designed a wind-tunnel for testing airplane models and parts; transferred to Science and Research Dept., making engr. calculations and design of an internal combustion rotary gas engine for airplanes; Engr., Colt's Patent Fire Arms Manufacturing Co., Meriden, Conn., designing special machinery for quantity production of Browning machine gun.
- GRAHAM, A. F., JR. (II) Asst. Sec. and Traffic Mgr., Sturtevant Aeroplane Co., Jamaica Plain, Mass., mfg. De Havilland battleplanes and Curtiss Airplane spares for training machines.
- HADLEY, E. C. (VI) Asst. Engr. and Ballistic Engr., Remington Arms Union Metallic Cartridge Co., Inc., Bridgeport, Conn., testing and developing small arms ammunition for rifles, machine guns and pistols.
- HALE, B. H. (X) in charge of the Diffusion Laboratory, Goodyear Tire & Rubber Co., Akron, Ohio. (Page 400.)
- HALL, O. C. (VI) Equipment man, American Telephone & Telegraph Co., Hartford, Conn. and Providence R. I.
- HAMILTON, L. F. (V) Inst., School of Military Aeronautics, M. I. T., in charge of Military Drill and Discipline, and Inst., Machine Gun and Explosives, Naval Aviation Detachment, M. I. T.; Inst., S. A. T. C.; Technical Expert in shell cases, U. S. Ord., for civilian corporations. (Pages 20 and 45.)
- HANSON, A. E. (VI) Assoc. Engr., Bu. of Standards, Dept. of Commerce; organized 1st Branch Gage Testing Laboratory of Bu. of Standards, New York City, for inspection of munitions limit gages; Asst. Chief of Gage Sect., supervising three branch laboratories, Washington, D. C., 1 July '18. (Page 347.)
- HARPER, S. H. (IV) Architect, Monks & Johnson, at Squantum, Mass., and other shipbuilding plants, Sept. '17; Chief Estimator, Public Works Dept., League Island Navy Yard, Pa., Oct. '18.
- HAUSER, W. J. (IV) Inst., S. A. T. C.; Topographical Mapper, Naval Aviation Det., M. I. T. and School of Military Aeronautics, making landscape paintings on large scale of portions of battle front and seacoast from maps and photographs.
- HEALY, F. C. (VI) Engr., American Telephone & Telegraph Co., New York City; scheduled toll cable output of Western Electric Co. for Bell System.
- HILLER, A. D. (VII) inspecting horses and cattle for British Govt., in London, before Nov. '16. See Military Record.
- HORTON, J. W. (XIV) Technical Expert, Anti-Submarine Div., Navy Dept., Washington, D. C., Apr. '17; U. S. Naval Hq., London, England, working on problems connected with detection of enemy submarines, Sept. '18 until armistice.
- HOUSTON, W. P. (I) Structural Draftsman, Office of Engr. of Structures, Boston & Maine R. R., Boston, Mass.
- HSU, P. H. (V) Research Chemist, Larkin Co., Buffalo, N. Y., '16-'18; Procter & Gamble Co., Ivorydale, Ohio, doing research work on soap mfg., oils, fats and glycerine.

REGISTER OF CIVILIAN RECORDS

- HURLBUTT, F. L. (II) Safety Engr., E. I. du Pont de Nemours & Co., Wilmington, Del., designing and operating safety devices for explosive plants.
- JUDGE, J. A. (VI) Supt. and Asst. Treas., Highland Manufacturing Co., Holyoke, Mass., mfg. writing pads and index cards for War, Navy and other depts.
- KEATING, H. M. (X) Supt. of mfr., Strathmore Paper Co., Mittineague, Mass., mfg. paper for Govt.
- KEITH, W. P. (X) Aeronautical Mechanical Engr., Bu. of Aircraft Production, in England studying foreign fibre cons., 14 Nov. '17—15 Feb. '18; stationed at the Goodyear Tire & Rubber Co., Akron, Ohio, 15 Feb.—15 Dec. '18, developing balloon fabrics for use in dirigibles. (Page 400.)
- LANGDON, H. M. (VI) Timekeeper and Engineering Asst., Plant Dept., Brockton Dist., New England Telephone & Telegraph Co.
- LARKIN, E. W. (I) Estimator, Fred T. Ley & Co., Inc., Springfield, Mass., supervising building contracts for Govt.
- LOVETT, I. H. (VI) Electrical Designer, New England Power Co., Worcester, Mass., furnishing power to munition plants and essential industries.
- MCCULLOUGH, PERCY (VI) General Engr., The Angus Co., Ltd., Calcutta, India, constructing buildings and installing machinery in jute mill and machine shop for making mill machinery for mfg. jute used for sand bags for British Govt., 4 Oct. '14—31 Mch. '19.
- McENARY, D. R. (IV) Architectural Designer, later Liaison Agent, Engr. Branch, Cons. Div., War Dept., representing War Dept. in cons. of temporary office building built by Navy Dept.; in charge of gathering statistics, photographs, and plans of all Govt. cantonments, camps and posts, and preparing them for publication, Dec. '17—Oct. '18. See Military Record.
- MACKENZIE, M. C. (II) General Mgr., The Benjamin Chase Co., Derry Village, N. H., mfg. reed ribs and harness shafts for textile industry.
- McPHERRIN, W. L. (II) Asst. General Supt., Keystone Steel & Wire Co., Peoria, Ill., mfg. steel for U. S., French, and Italian Govts.
- MAGOON, E. H. (XI) Sn. Engr., U. S. Nitrate Plant No. 2, Muscle Shoals, Ala., 29 Mch. '18; in charge of the Field Sanitary Laboratory, handling problems concerning disposal of sewage, water supply, mosquito eradication, fly suppression and sanitary analysis of water, milk and sewage; transferred Ord. Dept., Washington, D. C., Mch. '19. See Military Record and page 375.
- MARSH, L. F. (II) engaged in development of carburetor for airplane use.
- MARTSOLF, J. E. (IV) refused enlistment on account of a loose cartilage in knee.
- MASFERRER, J. R. (II) Erecting Engr. on installation of two hydraulic plants, Navy Yard, New York. Physical disability prevented military service.
- MASON, K. C. (VI) Electrical Engr., Edison Electric Illuminating Co., Brockton, Mass., furnishing power for munition plants.
- MAXIM, M. S. (II) Chemical Engr., Merrimac Chemical Co., North Woburn and Everett, Mass., in charge of design of various heavy chemical plants for explosive bases.
- MAYO, D. H. N. (II) Mech. Engr., Power Dept., Ford Motor Co., Detroit, Mich.; in charge of designing and inspection of installation of power plants for Eagle Patrol Boats built for Govt., Jan. '18; member of the Marine Adjustment Bd. of the Ford Motor Co., Dec. '18—July '19.
- MOORHOUSE, R. W. (X) Chem. Engr., R. T. Moorhouse Paper Co., Philadelphia, Pa., mfg. waterproof case linings for exporters and munition shippers until Aug. '18; Chemical Engr., Chemical Dept., Barrett Co., Frankford, Pa., in charge of natural phenol production.
- MORRILL, P. E. (I) with Engr. Dept., Bemis Brothers Bag Co., St. Louis, Mo.
- MORRISON, H. A. (II) Transportation Mgr., Scoville Manufacturing Co., Waterbury, Conn., mfg. brass munition including time fuses, high explosive fuses, cannon case, cartridge case, bullets and rifle cleaning rods.
- MORSE, J. C. (I) Aeronautical Engr., Bu. of Aircraft Production, McCook Field, Dayton, Ohio, specializing on aircraft propellers after 10 Sept. '17.
- MUNN, D. W. (II) Asst. Engr., Steel Co. of Canada, Ltd., Montreal, mfg. 4.5" and 9.2" shell; Asst. Engr., Algoma Steel Corp., Sault Ste. Marie, Ont., producing shell steel; Chief Engr., Armstrong, Whitworth of Canada, Ltd., Longueuil, Que., producing shell steel and tools for shell mfr.
- OBER, C. H. (I) Jr. Hydrographic and Geodetic Engr., U. S. Coast and Geodetic Survey, June '17; in Philippine Islands, confidential surveys for U. S. N., until May '18; Ex. Officer, Survey Party, Block Island Sound, Naval Base, July '18; C. O., U.S.S. Hydrographer, lower Chesapeake Bay, Sept. '18.
- OLESON, C. W. (II) Mech. Engr., Winchester Repeating Arms Co., New Haven, Conn., Sept. '15—Dec. '17, engaged in drafting, and efficiency work on small arms and munitions. See Military Record.
- PARIS, ISRAEL (XIV) Patent Examiner, Patent Office, Washington, D. C.
- PECK, E. B. (V) at American University, Washington, D. C., doing chemical research, before entering C. W. S. See Military Record.
- PETTS, A. F. (II) Estimator, Draftsman and Engr., D. M. Dillon Steam Boiler Works, Fitchburg, Mass., mfg. steam boilers, smoke stacks and flues, receivers, kierns, vulcanizers, tank and heavy steel plate equipment for industrial and power plants; Member, Draft Bd., Fitchburg.

TECHNOLOGY'S WAR RECORD

- PRICE, W. H., JR. (X) Compounding Rubber Chemist, Goodyear Tire & Rubber Co., Akron, Ohio, working on gas mask rubbers, intermediate fabrics and tires. (Page 400.)
- RALTON, F. A. (I) Resident Engr., Assatet Mill, Maynard, Mass., for American Woolen Co.; built 5000 b. h. p. boiler plant and five story mill in a pond and installed 3000 K.W. turbine.
- REBER, J. B. (II) Asst. General Supt., Columbian Rope Co., Auburn, N. Y.
- RICHARDSON, L. M. (I) Field Supt., Aberthaw Construction Co., Boston, Mass., Asst. on mfg. building for Colt's Patent Firearms Manufacturing Co., Hartford, Conn., to July '17; Supt. on plant for Smith & Wesson, Springfield, Mass., to Nov. '17; on plant for Mattatuck Manufacturing Co., Waterbury, Conn., to July '18; Supt. of Concrete Boat Plant, Fields Point, Providence, R. I., to Feb. '19
- RICKER, C. W. (VI) Inst., Dept. of Electrical Engr., M. I. T.; conducted tests to determine power absorbed by airplane propellers used in connection with the testing and design of engines for training planes.
- SAYWARD, M. J. (II) Marine Draftsman; Bath Iron works, Bath, Maine; Seattle Construction & Dry Dock Co., Seattle, Wash.; Brooklyn Navy Yard.
- SCANNELL, P. L. (II) Engr. and Supt., Scannell Boiler Works, Lowell, Mass., mfg. ammunition machinery and parts for tanks; designed and constructed a gas furnace for annealing cartridge shells; constructed and installed apparatus used in mfr. of picric acid and T. N. T.
- SHAFRAN, M. J. (V) Govt. Chemist., Inspection Div., Ord. Dept., at Washington Steel and Ordnance Co., Washington, D. C., testing materials used for making shells.
- SHAW, CHARLES (I) Junior Hydrographic and Geodetic Engr., U. S. Coast and Geodetic Survey, Philippine Islands.
- SIMPSON, W. A. (X) Chemist, Chemical Co. of America, Springfield, N. J., mfg. intermediates for khaki dye, cellulose acetate for airplanes, benzyl chloride and benzaldehyde.
- SMITH, H. C. (IV) Architect. Housing Company of Boston, Mass., town planning and industrial housing.
- SMITH, M. S. (XIII) Treas. and Chemist., Salem Oil & Grease Co., Salem, Mass., mfg. oils used in army leathers.
- SMITH, S. A. (IV) Structural Engr., Aberthaw Construction Co., Boston, Mass., in charge of structural design of new industrial plants, ammunition factories and machine shops.
- SNYDER, E. E., JR. (X) in Chemical Engr. Dept., Semet-Solvay Co., Syracuse, N. Y., mfg. by-product coke ovens.
- SOMERBY, F. S. (III) took charge of gang on 300-acre market garden. Refused for military service.
- SPITZ, S. J. (X) Chemical Engr., Newport Chemical Works, Inc., Newport Hydro Carbon Co., Newport Mining Co., Carrollville, Wis., producing phenol for explosives, pharmaceuticals, dyes, and intermediates.
- STANYAN, S. W. (VI) Supervisor of Efficiency, Boston Factory, American Can Co., mfg. cartridge liners and food containers for Army. Refused for military service because of defective hearing.
- STUMP, D. J. (II) General Supt., Ross Heater & Manufacturing Co., Buffalo, N. Y., mfrs. of heaters and condensers for the Bu. of Yards and Docks.
- TALLMAN, V. M. F. (VI) Power Engr., and Technical Asst. to Pres., Worcester (Mass.) Electric Light Co., working on design and supervision of electrical power installations; Consulting Steam and Electrical Engr. for power customers of the Worcester Electric Light Co.
- THOMPSON, N. A., JR. (V) Sec., Refined Oil Div., Standard Oil Co. of New York, Shanghai, China, operating company's ships under govt. instructions.
- TOWNSEND, R. V. (X) Research Chemist and Chemical Engr., Semet-Solvay Co., Syracuse, N. Y., doing chemical efficiency work in connection with the mfr. of picric acid; in charge of the development of certain poison gas chemicals.
- TREAT, H. W. (II) Mgr., Balloon Production Dept., Bu. of Aircraft Production, 18 Aug. '17—31 Oct. '17. See Military Record.
- TRUE, A. S. (II) Student, Springfield Machine Gun School, Springfield, Mass., 7 June '17; Instructor, 28 July; transferred to Experimental Dept., 1 Oct. See Military Record.
- TRUFANT, R. A. (I) Chief of Party, Dept. of Interior, U. S. Reclamation Service, Clint, Texas; Transitman, Chester & Fleming, Supervising Engrs. for Camp Knox, Ky.
- WAGNER, G. A. (VI) Electrical Contractor, Stafford Springs, Conn., engaged in installing motors and power wiring for factories making cloth for uniforms.
- WALSH, L. F. (I) Inspector, Bu. of Ord., Navy Dept.
- WALTON, C. J. (VI) Engr. Asst., Bell Telephone Co. of Pa., engaged in design and selection of tools and material used in the cons. and maintenance of outside telephone plant.
- WARREN, W. H. (II) Aeronautical Mechanical Engr., and asst. to Officer in Charge of Aircraft Engr. Div., Sig. C., June—Aug. '17. See Military Record.
- WATERBURY, B. H. (II) General Supt., Eclipse Works, Atlantic Refining Co., Franklin, Pa., mfg. gasolines, fuel and lubricating oils, paraffines and petrolatums.
- WENTE, E. C. (VI) Research Engr., Western Electric Co., New York City, making studies of anti-submarine devices.
- WESCOTT, E. W. (V) Chemical Engr., Bu. of Mines, at American University Experiment Station, Washington, D. C., and Nitrogen Products Co., Niagara Falls, N. Y., developing silicon tetrachloride manufacture.

REGISTER OF CIVILIAN RECORDS

- WEYERBACHER, R. D. (XIII) Asst. Constructor, C. C., U. S. N., Navy Dept., Washington, D. C. and Navy Yard, Philadelphia, Pa.
- WHITTEN, FRANCIS, JR. (IV) with John H. Bickford Co., participating in the design of a hospital group to be taken over by Govt. for returned soldiers.
- WILKINS, H. S. (XIV) Chemical Engr., Chemical Development Sect., Research Div., Bu. of Mines, Washington, D. C., Mch.—Nov.'18. See Military Record.
- WILSON, L. A. (XIV) Asst. Chief of Testing Dept., New Jersey Zinc Co., Palmerton, Pa., inspecting, testing, and analyzing all raw materials, intermediate, waste and finished products.
- WYNNINGHOFF, W. J. (V) Chemist, American University Experiment Station, Washington, D. C., Mch.—Oct. '18. See Military Record.
- WOODWARD, ROLAND, JR. (II) Design Engr., E. I. du Pont de Nemours & Co., Wilmington, Del.; worked in connection with loading plant for shells, fuses, detonators, primers, tracer and incendiary bullets, aerial drop bombs and trench mortar bombs. Tried to enlist but was rejected.
- ZECHA, R. F. (VI) U. S. Naval Inspector of Machinery, Fore River Works, Quincy, Mass.; examined and criticised plans of submarines, compiled data and lists, recommended changes in connection with machinery and electrical items under Bu. of Steam Engr., Washington, D. C. See Military Record.

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- ABRAMS, ALLEN (V) War Gas Investigator, Bu. of Mines, Washington, D. C., 1 Sept.—20 Dec. '17. See Military Record.
- ANDERSON, A. H. (I) Shaft Engr., later Engr., Public Service Comm. on tunnel cons. work; Camp Upton, N. Y., for three weeks; disch. for work with Public Service Comm. See Military Record.
- ARMISTEAD, S. W. (I) Expert Aide, Bu. of Yards and Docks, Navy Dept., at Naval Proving Ground, Indian Head, Md., constructing powder mill. See Military Record.
- ARMSTRONG, L. E. (X) Production Expert, Aerial Instrument Sect., Aircraft Production, Hazelhurst Field No. 1, Mineola, L. I., N. Y., conducting flight and laboratory tests on oxygen supply apparatus for high altitude flying.
- ASH, W. E. (IV) Engine Draftsman, Bath Iron Works, drawing plans for destroyers, Bath, Me. (Page 383.)
- BAILEY, L. H. (X) Chemical Engr., F. J. Stokes Machine Co., Philadelphia, Pa., designing amatol mixers and poison gas condensers; did experimental work on mfg. pellets of tetryl and other explosives for shells boosters, fuses, tracer bullets, and signals. (Page 366.)
- BALL, J. A. (VII) Scientific Expert, Ord. Dept. at Aberdeen Proving Ground, Md., working on photography of projectiles in flight.
- BASSETT, H. R. (II) Plant Engr., Singer Mfg. Co., Bridgeport, Conn., equipping shop to make Browning machine gun parts; Steel Experimenter, Wyman Gordon Co., Worcester, Mass., working on steel for crank shafts in Liberty, Rolls-Royce, and other airplane motors; Chairman, Fuel Saving Comm.
- BELCHER, DONALD (X) Chemist, Winchester Repeating Arms Co., New Haven, Conn., '17—'19. See Military Record.
- BERKOWITZ, SAMUEL (II) Efficiency Engr., later Asst. General Supt., Worthington Pump & Machinery Corp., Hazleton, Pa., constructing buildings, installing machinery, designing and building special tools for mfg. shells, forgings, and adapters for 75 mm. shell.
- BIGELOW, L. A. (V) engaged in chemical research work at Yale University. Rejected for active service on account of defective vision.
- BLODGETT, C. A. (X) Supt., Eastern Electrochemical Co., South Brewer, Maine, mfg. electrolytic chlorine and caustic soda.
- BURTNER, EVERS (XIII) Ship Draftsman, Navy Dept., working on submarine designs; Port Engr., John S. Emery & Co., Inc., repairing U. S. Shipping Bd. vessels.
- CASSELMAN, E. J. (X) Asst. Chemist, U. S. Public Health Service at Washington, D. C., and at Ord Dept. Shell Loading Plant, Penniman, Va., making chemical investigation of T. N. T. and other explosives with relation to poisoning of munition workers.
- CHELLMAN, L. H. (I) Asst. Chief of Production, Turbine Plant, Bethlehem Shipbuilding Corp., Ltd., Buffalo, N. Y., under control of Navy Dept., 24 Dec. '18—1 Oct. '18. Refused enlistment in Engrs. on account of poor heart. See Military Record.
- CODWELL, P. W. (X) Inspector of Powder and Explosives, du Pont Cap Works, Pompton Lake, N. J., under Ord. Dept., in charge of inspection and tests of mercury fulminate.
- COLBY, H. L. (II) Chief Draftsman, later Asst. Mechanical Engr., Mason Regulator Co., Dorchester Center, Mass., mfg. reducing valves and pressure regulators for air, water, and steam, for Navy Dept. and U. S. Shipping Bd.
- CONNOR, PAUL (I) Draftsman, Bethlehem Shipbuilding Corp., Fore River, Mass., drafting and taking data on destroyers on trial trips.

TECHNOLOGY'S WAR RECORD

- COWLES, M. W. (XI) Asst. Sn. Engr., Ill. State Health Dept., co-operating with Medical Corps and U. S. Public Health Service in national extra-cantonment zones and national guard camps in Illinois, Apr. '16. See Military Record.
- DALTON, J. N. (X) Chemical Engr., Providence Gas Co., R. I., for Ord. Dept., supervising toluol production.
- DANA, A. S. (VI) Engr. Asst., Western Union Telegraph Co., New York City, working on Multiplex Printing Telegraph, cable service, and telegraphic transmission on land lines.
- DANIELS, H. W. (I) Asst. to British Govt. at Tsingtau in enlisting coolies for work in Europe.
- DOANE, N. D. (V) Inspector on cons. of roads, sewers and water supply, Air Nitrates Corp., Muscle Shoals, Ala., 15 July '18; General Foreman on chemical control work, Ammonium Nitrate Dept., 1 Nov.; Chemical Supervisor, Ammonium Nitrate Dept., 5 Jan.—7 Mch. '19.
- DOANE, R. O. (I) Travelling Shop Time Inspector, Atlantic Coast Line R. R., Wilmington, N. C., under U. S. Railroad Adm.
- DUNN, C. T. (II) Acting Asst. Production Supervisor, Tool Dept., Winchester Repeating Arms Co., New Haven, Conn.; Engr. and Asst. Supt., Ansonia Mfg. Co., Ansonia, Conn., mfg. artillery fuses, June '18.
- DURKEE, C. H. (II) Machine Gun Inst., Ord. Dept., 18 June '17—4 Feb. '18. Gave instruction on machine guns and ammunition requirements at armories, arsenals, and small arms ammunition plants. See Military Record.
- EASTER, G. J. (XIV) Chief Inspector for Q. M. C. and Ord. Dept. on steel helmets and mess equipment at various plants in U. S.
- EDDY, C. W. (II) (VI) Student, School for Machine Gun Instructors, Springfield (Mass.), Armory, 1 June '17; Inst., Inf. School of Arms, Ft. Sill, Okla., 1 Aug.; Draftsman, Bethlehem Shipbuilding Corp., Fore River, Mass., 1 Nov. '17. and at Bethlehem, Pa., 1 June '18.
- FALES, D. A. (II) investigated schools of the Royal Flying Corps in Canada as a basis for organization of the School of Military Aeronautics at M. I. T. (Page 12.)
- FIELD, B. E. (X) Asst. Head of Laboratory Div. (including chemical and metallurgical control of raw materials and product), Winchester Repeating Arms Co.
- FINKELSTEIN, J. L. (VIII) Asst. Physicist, National Bu. of Standards, Washington, D. C., research work in heat and thermodynamics; member of staff, engaged in production of helium for balloons.
- FLETCHER, R. L. (II) Asst. Supt., Providence Gas Co., supervising mfr. of gas, coke, ammonia, tar, benzol, and toluol.
- FOGERTY, J. S. (VI) Tester of Electrical Apparatus, Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pa. See Military Record.
- FOSTER, F. R. (I) Safety Engr., Liberty Mutual Insurance Co., Philadelphia, Pa., acting in advisory capacity on matters of safety in the cons. of a nitrate plant at Perryville, Md., and of a bomb-loading plant at Mt. Pleasant, Del.
- FOWLER, G. S. (VIII) Asst. Chemist, Navy Ord. Dept. at Proving Ground, Indian Head, Md., mfg. sulphuric and nitric acids, nitrating cotton, and other chemical products.
- HAMBURG, ABRAHAM (XI) Chief of Transit Party, with J. R. Worcester & Co., Fay, Spofford & Thorndike, and W. F. Kearns Co. of Boston, Mass., in charge of line and grade parties.
- HANSEN, C. T. (X) Control Chemist, with New England Mfg. Co., E. I. du Pont de Nemours & Co., and A. D. Little, working on explosives and airplane varnish; Asst. Supt., Standard Fibre Co., mfg. fibre receptacles and electrical insulation. Rejected by Aviation Corps and Draft Bd. on account of physical condition.
- HARBAUGH, W. M. (VI) Asst., later Plant Engr., Merrill-Stevens Shipbuilding Corp., Jacksonville, Fla., supervising design of all plant improvements including heat, light, power, and sanitation, installation and maintenance of cranes, plant machinery, and power house equipment.
- HARDING, MARSTON, (VI) Machine Draftsman on automobile engine repair. See Military Record.
- HART, RALPH (X) Chemist in Charge, L. Sonneborn Sons, Inc., Belleville, N. J., mfg. greases, lubricants, and cutting cooling oils for ammunition plants and oils for helmet and camouflage paints.
- HAYLETT, R. E. (X) Chief Chemist, Union Oil Co., Oleum, Calif., technical adviser on war problems concerning production, specifications, and preparation of special products.
- HAYWARD, R. L. (I) Engr. for Mass. Fish and Game Commission and Mt. Hope Finishing Co., North Dighton, and other clients, developing fish-food supply and assisting in agricultural production.
- HEATH, L. J. (V) Metallurgist, B. F. Sturtevant Co., '15; Asst. Dist. Metallurgist, Bu. of Aircraft Production, '18, supervising metal inspection.
- HILBERT, O. W. (II) Asst. to Chief Chemist, Corning Glass Works, Corning, N. Y., mfg. glass for war purposes.
- HOHL, G. M. (XI) (II) Metallurgical Asst. in blast furnace, later Asst. Supt., Bethlehem Steel Co., Pa., in charge of ore shipments, '15—'19.
- HOOPER, D. O. (II) Marine Engine Draftsman, Bath Iron Works, Maine, designing torpedo boat destroyers for Navy. (Page 383.)
- HOWES, P. S. (IV) Engr., Stone & Webster, on American Ord. Base Depot in France plans; Concrete Engr., Liberty Shipbuilding Co., in charge Reinforced Steel Sec.; Engr., Fred T. Ley & Co., designing, scheduling, and inspecting reinforced concrete on U. S. Ammonium Nitrate Plant, Perryville, Md., and U. S. Picric Acid Plant, Brunswick Ga. (Page 393.)

REGISTER OF CIVILIAN RECORDS

- HOWLETT, C. W. (X) Rubber Research Chemist, E. I. du Pont de Nemours & Co.; Chemist and Development Mgr., Kokomo Rubber Co., Ind., mfg. gas mask material, watertight clothing, hospital sheetings, and tires for searchlight trucks, bicycles, and motorcycles.
- HUFF, T. H. (II) Chief Engr., Standard Aero Corp., Plainfield and Elizabeth, N. J., in charge of the design and production of airplanes for Army. (Page 370.)
- HULSE, M. W. (II) Draftsman, Govt. Tohuol Plant, Vernon, Calif.
- HURLBUTT, F. L. (II) Safety Engr., E. I. du Pont de Nemours & Co. (Page 359.)
- HYNEMAN, JOHN (I) Aero Engr., Airplane Engr. Dept., Bu. of Aircraft Production, McCook Field, Ohio, 1 Feb.—15 Nov. '18.
- JACKSON, B. H. (V) Chem. Engr., Hord Alkali Products Co., Hord Co., Lakeside, Neb., developing potash resources to supply potash salts to fertilizer industry.
- JAMESON, G. R. (II) Chief of Piecework Dept., Squantum Works, Bethlehem Shipbuilding Corp., Ltd., Squantum, Mass., Jan. '16.
- JOHNSON, K. S. (II) Mech. Engr., Plant C, Sayles Finishing Plants, Providence, R. I., finishing khaki, duck, raincoat, and handkerchief cloth.
- JONES, F. R. (II) Tool Supervisor, Master Mechanic, later Plant Engr., Quincy and Squantum Works, Bethlehem Shipbuilding Corp., '15—'19; supervised installation and operation of portable and stationary tools in new Destroyer Plant, Squantum, making special study of electric welding. (Page 383.)
- KAHN, K. D. (X) Asst. Chem. Engr., designing, erecting, and operating experimental plants for mfr. of chemicals; Asst. to Personnel Comm; Editor and Mgr. of publications, editing weekly newspaper of Research Div., American University Experiment Station, War Dept., Washington, D. C., 13 May—10 Dec. '18. See Military Record.
- KAUFMAN, M. B. (X) Pres., Archer Strauss Rubber Co., Framingham, Mass., mfg. rubberized cloth; experimental work on Govt. requirements.
- KELEHEHER, J. A. (V) Explosive Chemist, Ord. Dept.; Chief Army Inspector, American Powder Mills, Acton, Mass., 15 Aug. '18.
- KIMBALL, N. E. (II) Development Engr., Mechanical Goods Design Div., Goodyear Tire & Rubber Co., Akron, Ohio.
- KINGSBURY, E. J. (II) Foreman Tool Dept., Kingsbury Mfg. Co., Keene, N. H., mfg. tools for making various parts required by the Aircraft and Ord. Depts.
- KLINK, N. S. (I) Resident Engr., Structural Draftsman and Designer for Charles T. Main, Boston, Mass.; work included valuation of industries for federal taxes, inspection of hydro-electric development and heavy concrete factory construction.
- KNOWLES, H. I. (V) Chemist, Atlantic Sugar Refineries, Ltd., St. John, N. B.; Analytical Chemist, J. T. Donald & Co., Montreal, testing munitions for Imperial Munitions Bd.; Research Chemist, Canadian Electro Products Co., Shawinigan Falls, mfg. acetic anhydride from acetylene gas for airplane dope.
- KUTTNER, JULIUS (II) Asst. Designer and Diesel Engine Erecting Engr., Sperry Gyroscope Co., Brooklyn, N. Y.; Warrant M. M., U. S. N. R. F. (orders revoked to permit above work). See Military Record.
- LACY, C. W. (VI) Equipment Div., War Dept., Washington, D. C., May—Nov. '17. See Military Record.
- LAFFETRA, C. W. (II) Overseer of Special Tools, Winchester Repeating Arms Co., New Haven, Conn.; developed heavy duty hydraulic lathe for production of heavy calibre projectiles; assisted in design and development of quantity production of heavy type Browning machine gun.
- LAMSON, H. W. (VIII) Radio Expert, Radio Laboratory, Navy Yard, Boston, Mass.; inspected and developed radio apparatus, July '17—Aug. '18. See Military Record.
- LAW, H. H. (IV) Draftsman, Stone & Webster, working on plans for additions to Rock Island and Watertown Arsenals, Hog Island Shipyard, and a picnic acid plant erected at Grand Rapids, Mich., for Somet-Solvay Co.
- LAWRENCE, G. C. (II) reported draftsman, Ord. Dept., Washington, D. C.
- LEWIS, W. R. (IV) Production Engr., Gorham Mfg. Co., Providence, R. I., supervising production and quality of ammunition, bomb sights, surgical instruments and hand grenades; Production Mgr., Lebanon Knitting Mill, Pawtucket, R. I., supervising production and quality of gas mask lining.
- LIVERMORE, J. M. (I) Civil Engr., and Shift Boss in Braden Mines, Braden Copper Co., Rancagua, Chile, in charge of construction of underground air compressing plant for increasing the output of copper, '16; left Chile to join U. S. Army, Oct. '18; ordered to Camp Lee, Va., when armistice was signed.
- LUCEY, H. J. (X) on the Chemical Engr. Staff of E. B. Badger & Sons Co., mfrs. of brass and copper products. (Page 398.)
- McEWEN, W. R. (II) Inst., Machine Gun Course, Springfield Arsenal, Mass., June '17; Inst., U. S. School of Military Aeronautics, M. I. T., Oct. '17—Jan. '18. See Military Record.
- McMURTRIE, D. H. (X) Chemical Engr., in charge Colored Sig. Sect., Pyrotechnic Div., War Gas Investigations, Bu. of Mines, Washington, D. C., Sept.—Dec. '17. See Military Record.
- MACNEILL, P. W. (VI) Coal Passer, Merchant Marine Service, U. S. Shipping Bd., on coal tramp and steamer of United Fruit Co., cruising Atlantic Coast, Cuba, and Central America. Refused for enlistment in Army and Marine Corps for physical reasons. See Military Records.

TECHNOLOGY'S WAR RECORD

- MACONI, G. V. (I) Engr. Physicist, Concrete Experimental Laboratory, National Bu. of Standards, Washington, D. C., in charge of waterproofing investigation, concrete for concrete ships, and gun foundations for rapid advance of army; special study of Gunite.
- MALONE, C. B. (VI) Asst. Mgr., Plant Co., International Arms and Fuze Co., Bloomfield, N. J., Nov. '15—July '17. See Military Record.
- MASUCCI, PETER (VII) Chief Chemist, H. K. Mulford Co., Glenolden, Pa., mfg. serums and vaccines for Govt.
- MAXWELL, H. O. (III) Chief Clerk, San Joaquin Light and Power Corp., Taft, Calif., supplying energy for pumping oil wells.
- MEAD, G. J. (II) Experimental Engr., in charge Experimental Dept., Wright-Martin Aircraft Corp., New Brunswick, N. J., and Long Island City, N. Y., developing Hispano-Suiza aviation engines for France and United States.
- MELLEMA, WILLIAM (IV) Reinforced Concrete Designer, Westinghouse, Church, Kerr & Co., New York City; Reinforced Concrete Engr., Cramp & Co., Philadelphia, Pa., Oct. '17; Structural Designer, Public Works Dept., Philadelphia, Pa., July '18—June '19.
- MERRILL, E. E. (IV) Shipfitter, Puget Sound Navy Yard, Oct. '17; Ship Draftsman and Acting Chief of Hull Div., Pearl Harbor Naval Station, Hawaii, Aug. '18-'19.
- MOORE, D. M. (I) Transmittal, in charge of field party on cons., Boston & Albany R.R., Aug. '17; Draftsman, Designing Engrs. Office, B. & A. R.R., Aug. '18. Refused for military service as physically unfit.
- MORSE, H. E. (II) Engr., Experimental Dept., Goodyear Tire & Rubber Co., Akron, Ohio, designing equipment and mfg. methods for making gas masks, gas mask parts, and airplane accessories exclusive of tires. (Page 401.)
- MOULTON, C. R. (XI) Scout Executive, Boy Scouts of America, Schenectady, N. Y.; Member, Ex. Comm., Liberty Loan Campaigns, Red Cross, W. S. S., and United War Work Drives; made investigations for Intelligence Dept. of Dept. of Justice.
- MUNN, P. J. (I) Asst. Office Engr. and Concrete Designer, Stone & Webster, on construction of Watertown Arsenal Apr.—Aug. '18, and in Syracuse and N. Y. Offices on design of Picric Acid Plant for Govt. at Grand Rapids, Mich., Aug.—Nov. (Page 377.)
- NORBERG, E. P. (IV) Shipfitter, Los Angeles Shipbuilding & Dry Dock Co., San Pedro, Calif., erecting gun foundations and deck-houses, Apr. '18. See Military Record.
- NORTON, O. G. (II) Civilian Motor Mechanic, Aviation Sect., Sig., C., Detroit, Mich., 28 May '17; Motor Mechanic with Bolling Mission to obtain engr. data in English and French factories for airplane construction service of U. S. Army, 16 June—15 Dec. '17. See Military Record.
- NOYES, C. W. (VI) Testman, later Draftsman in Switchboard Dept., General Electric Co., Schenectady, N. Y., testing mfr. machinery and designing switchboard wiring for govt. plants.
- PAINE, C. G. (II) Mechanical Supt., Katahdin Div., Eastern Mfg. Co., Lincoln, Maine, pulp and paper mill.
- PHELAN, J. F. (VII) Sanitarian, H. P. Hood & Sons, Dairy Experts, Boston, Mass., supervising general sanitation and laboratory; refused for active service in Army and Navy on account of arterial trouble.
- PICKERING, H. B. (I) Asst. Engr., E. I. du Pont de Nemours & Co., constructing powder and high explosive plants. See Civilian Record.
- PIKE, W. F. (I) Structural Designer, Fay, Spofford, & Thorndike, Boston, Mass., designing Boston Army Supply Base.
- PIZA, ST. E. T. (IV) Draftsman and Asst., Field Cons. and Repair Div., U. S. Army Transport Service in port of Embarkation, New York, Jan.—Sept. '18. See Military Record.
- POLLARD, R. F. (X) Supervisor of Cordite Mfr., Canadian Explosives Ltd., Nobel, Ont., Sept. '15—May '16; Expert Chem. Engr., British Cordite Co., Beloeil, P.Q., Aug. '17; returned to Canadian Explosives Ltd. for development work on T. N. T., May '18. (Page 366.)
- PUTNAM, C. P. (II) Inst., Machine Gun Course, Springfield, Mass., '17.
- ROBINSON, G. D. (VI) Asst. Prof., Dept. of Electrical Engineering, Physics and Chemistry, Naval Academy, Annapolis, Md., instructing midshipmen and naval reserve officers in radio telegraphy and electrical engineering.
- *ROGERS, HOMER (V) Research Chemist, E. I. du Pont de Nemours & Co., Wilmington, Del. worked on dye mfr. and explosives. Rejected in draft on account of heart. Died 2 Feb. '19, after an operation, his strength having been exhausted by work during the war. (Page 360.)
- ROONEY, G. T. (I) Supt., U. S. Housing Corp., in charge of cons. of brick apartment houses, Bridgeport, Conn., 1 Aug. '18.
- ROONEY, W. J. (VI) Asst. Ballistic Engr., E. I. du Pont de Nemours & Co., Experimental Station, Wilmington, Del., Jan. '15; Ballistic Engr., Old Hickory Plant, Nashville, Tenn., June '18—Feb. '19; made ballistic tests of black and smokeless powder and did experimental work on powders and special ammunition. (Page 360.)
- RUNELS, C. M. (IV) Asst. on Power Cons., for Stone & Webster, Buffalo, N. Y., Resident Engr., Buffalo General Electric Extension, supplying power for war industries.
- SANTOS, J. R. L. (II) Asst. Ord. Engr., The Bartlett Hayward Co., Baltimore, Md.; Mfg., assembled, and loaded artillery ammunition.
- SAUCHELLI, VINCENT (I) Research Chemist, Laboratories of the Financial Rubber Co., Batu Caves, Selangor, Federated Malay States, producing rubber for war purposes. See Military Record and page 403.

REGISTER OF CIVILIAN RECORDS

- SCHIESS, U. C. (IV) Structural Engr., Fred T. Ley & Co., on Ammonium Nitrate Plant, Perryville, Md.
- SCHUMUCKER, R. A. (III) Mining Engr., Braden Copper Co., Rancagua, Chile, producing copper for war purposes.
- SCHNEIDER, SOLOMON (V) Chemist, New England Mfg. Co., mfg. picric acid for Allied Govts., Nov. '17; Asst. Chemist, Navy Yard, at Philadelphia, Pa., May '18.
- SCRANNAGE, L. E. (II) Asst., Planning Dept., later Chief Planner, Forge Dept., Remington Arms Co., Bridgeport, Conn., mfg. arms for French, Russian, and British Govts.; Works Mgr., Boston Auto Gage Co., mfg. gages for Curtiss, Wright-Martin, Standard Aero, Navy and other planes; Asst. Supt., Hull Div., Navy Yard, Philadelphia, Pa., 1 May '18.
- SEARS, L. E. (VI) Electrical Draftsman, Office of Inspector of Machinery, Bu. of Steam Engr., Navy Dept.; Navy Inspector, Bath Iron Works, Maine, of electrical material for torpedo boat destroyers.
- SIMONS, G. W., JR. (XI) Chief Sn. Engr., Florida State Bd. of Health, Jacksonville, Fla., in charge of extracantonment sanitation around Carlstrom and Dorr Fields near Acadia, Fla., also around Camp Johnston near Jacksonville; directed sanitation in civil zones surrounding several gov. camps and shipyards.
- SKOLFIELD, G. L., JR. (I) Draftsman in Marine Engr. Dept., Sept. '15; Engr. and Supt. of Cons., later Plant Engr., Chester Shipbuilding Co., Ltd., Jan. '16; Agent, Merchant Shipbuilding Corp., for U. S. Shipping Bd., Philadelphia, Pa.
- SMITH, C. L. (VI) took M. G. Course, Springfield Armory, Mass.; M. G. Inst., Camp Sheridan, Ala.; attached to Div. School of Arms, 37th Div., June '17—1 May '18. See Military Record.
- SPEAR, T. F. (X) Chemical Engr., Small Scale Mfg. Div. of Toxic Gas Investigations, Bu. of Mines, Hastings-on-Hudson Plant, 16 Feb. '18; Medland, Mich., 25 May; Hastings, 30 June, designing, erecting and operating apparatus for mfr. of mustard gas. See Military Record.
- SPENCER, W. B. (IV) Designer, Westinghouse, Church, Kerr & Co.; Consulting Engr., Southern Pacific R.R.; Estimating and Designing Engr., White Construction Co., New York City, designing and constructing Naval Hosp., gov. storehouses and war industry mfg. plants.
- STEPHENSON, W. W. (IV) with Hopeman Bros. Lumber & Mfg. Co., Rochester, N. Y., in charge of sub-contract at Sun Shipbuilding Co., Chester, Pa., outfitting tankers, freighters, and troop ships.
- STEWART, V. T., (X) Chem. Engr., in charge of Thomas A. Edison's laboratory, Bloomfield, N. J., handling storage and primary battery work.
- STRINGFIELD, R. B. (X) Supt., Chemical Dept., Pacific Minerals & Chemical Co., Los Angeles, Calif., in charge of plant mfg. potassium permanganate for French Govt.
- SWIFT, H. D. (II) Mechanical Research Engr., Scovill Mfg. Co., Waterbury, Conn.; Engr., Brass and Estimating Dept., National Conduit & Cable Co., Hastings-on-Hudson, N. Y.
- TEESON, E. A. (II) Engr., in charge Balloon Dept., U. S. Rubber Co., New Haven, Conn., mfg., testing, and flying kite balloons.
- THOMAS, H. C. (I) Draftsman, later Designer, Fay, Spofford, & Thorndike, Boston Army Supply Base, working on design and layout of railroad yard and substructure of buildings.
- THOMAS, W. S. (II) M. G. School, U. S. Army, Springfield, Mass., 1 June '17; Inst., U. S. School of Military Aeronautics, M. I. T., 1 July; Inst. Naval Aviation Detachment, M. I. T., 1 Sept. See Military Record.
- TISDALE, E. S. (XI) Asst. Engr., later Director, Div. of Sn. Engr., State Dept. of Health, Charleston, W. Va.; inoculated men against typhoid fever; made sanitary and bacteriological examination of drilled and dug wells, Nitro, W. Va.; in charge of examinations of all railroad and public drinking water supplies in West Virginia.
- TOABE, KEBE (V) Chemist, Calco Chemical Co., directing laboratory work, and developing process for mfg. beta naphthol.
- TURNER, N. W. (III) Chief Chemist, Reynolds Works; Travelling Inspector, Chemical Div., Asst. Acid Supt., Supt. Powder Line, and Asst. Supt., Electric Blasting Cap Plant, Atlas Powder Co.
- VOGEL, F. J. (VI) Electrical Draftsman, Office of Superintending Constructor, Bu. of Cons. and Repair, Navy Dept. inspecting machinery, electrical apparatus and plans; Govt. Representative, trials of submarines.
- WALCOTT, R. H. (X) Chemist, Supervisor and Asst. Supt., Canadian Explosives, Ltd., Montreal, Ont., mfg. gun-cotton, cordite, T. N. T., and dynamite, Sept. '15—Jan. '19.
- WALKER, E. C., 3d (XIV) Pres., Genesee Chemical Co., Batavia, N. Y., developing gas shell lined with electrolytic-lead, mfg. plumbicized acid pails and perchloric acid.
- WARDWELL, V. E. (I) Supt., Marine Cons., F. S. Wardwell, Stamford, Conn.; work included launching ways for Shipping Bd. at various points, submarine pipe overflow and intake chamber for Edgewood Arsenal, and foundation and dock for Yale & Towne at Stamford.
- WARFIELD, G. H. (I) Asst. Engr., Westinghouse, Church, Kerr & Co., Inc., New York City; Field and Asst. Engr., Port of Embarkation, Newport News, Va., on entire layout of Warehouse Group No. 2; Asst. Office Engr., U. S. Nitrate Plant No. 2, Muscle Shoals, Ala.
- WARREN, R. A. (VI) Special Agt. for Director of Military Enrollment for Mass.; prepared publicity for Mass. and helped organize and direct formation of draft districts, registration, and classifications; Supt., Public Employment Office, Worcester, Mass., supplying munitions workers. See Military Record.
- WATERMAN, R. D. (IV) with the American International Shipbuilding Corp., Hog Island, Pa. (Page 391.)

TECHNOLOGY'S WAR RECORD

- WATERS, F. E. (II) Engr. Asst., Bell Telephone Co., of Pennsylvania, handling efficiency work in connection with construction of outside telephone plant at Govt. munition plants and shipyards.
- WERLICH, MCCENEY (X) Erecting Engr., American Locomotive Co., erecting steam locomotives for A. E. F. and French Govt. at Bordeaux and St. Nazaire, Oct. '17—Oct. '18. See Military Record.
- WEYMOUTH, P. W. (V) Analytical Chemist, Picric Acid Laboratory, New England Mfg. Co., No. Woburn, Mass.
- WHITCOMB, H. H. (II) Research Engr., Scovill Mfg., Co., Waterbury, Conn., in charge of rolling mill production of small arms ammunition.
- WILLIS, S. L. (III) Plant Metallurgist, later Asst. Supt., Oxide Dept., American Zinc, Lead, & Smelting Co., engaged in research to improve recoveries in zinc furnaces, roasting kilns, and sulphuric acid plant.
- WOLFE, C. F. (I) Asst. Engr., later Chief Engr., E. C. Maxwell Co., Brooklyn, N. Y., in charge of estimates, designs, and details of fuel and water tanks for govt. tugs, and cranes and derricks for shipyards for Emergency Fleet Corp.; rejected for active service eight times.
- WOOD, C. W. (I) Resident Engr., Stone & Webster, on construction at Watertown Arsenal; Asst. Engr., later, Chief Engr., Kelly Field, Texas; Asst. Engr., Ship Cons., Hog Island Shipyard, Pa., for Emergency Fleet Corp., U. S. Shipping Bd., Jan. '18. (Page 391.)

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- ALBERT, C. D., Ex. Asst. in charge Technical Dept.; Chief Inspector to Senior Engr., later Ex. Asst., Middle Atlantic Dist., U. S. Shipping Bd., Emergency Fleet Corp., at Baltimore, Md.
- AMES, WARREN (II) Asst., later Active Mgr., B. C. Ames Co., Waltham, Mass., mfg. dial gauges and bench lathes for govt. work on airplanes, guns, and ships.
- ARONSON, MARK (I) Ship draftsman, Navy Yard, Boston, Mass., working on alteration and repair of ships; designed and developed with the inventor, the Partridge Military Hydro-Kite.
- AUSTIN, P. P., JR. (II) Mech. Engr., Freeport Sulphur Co., Freeport, Texas, mining sulphur for Govt. and the Allies.
- BAKER, P. C. (II) Engr., Plane Design Div., Air Service, Washington, D. C., redesigning foreign planes to fit home mfr. See Military Record.
- BARKER, D. N. (XIV) Chemist, later Asst. Chief Chemist, Butterworth Judson Corp., New York City, and Newark, New Jersey, in charge of sulphuric acid for mfg. picric acid, and inspection of picric acid and ammonium picrate for U. S., French, and Russian Govts.
- BARNEY, E. J. (VI) Engr., The Domestic Engineering Co., mfg. Delco-Light, special development of engine generating set for army X-ray service.
- BERKE, S. R. (formerly Berkowitz), (II) Cons. Engr., W. F. Kearns Co., Boston, Mass., supervised and designed cons. layout, Boston Army Supply Base, temporary warehouses and S. A. T. C. barracks at Boston University. See Military Record.
- BERRIGAN, T. A. (XI) Structural Draftsman and Inspector of Construction, Bu. Yards and Docks, Navy Dept.; designed radio towers, structural features of storehouses, and inspected cons. of Seamanship and Navigation Buildings, Naval Academy; inspector in charge of reinforced concrete quay wall and new Bancroft Hall at U. S. Naval Academy.
- BICKFORD, H. L. (VI) Asst. Packing Mgr., U. S. Rubber Co., Cleveland, Ohio, mfg. special packing for U. S. N. See Military Record.
- BOLTON, MEADE (IV) Architectural Designer, working on Army and Navy buildings, Panama Canal. See Military Record.
- BOULTON, B. C. (I) Aeronautical Structural Engr., Air Service, McCook Field Experimental Station, Dayton, Ohio, 26 Nov. '17; in charge of Stress Analysis Sect., designing structural parts of airplanes and conducting experimental work. Unable to enter active service on account of heart.
- BOUSQUET, L' R. G. (X) Chief Chemist and Metallurgist, Director, Chemical and Physical Laboratory and in charge of Casting Dept., New Jersey Tube Co., Harrison, N. J.; responsible for chemical composition of condenser tubes for battleships, copper driving bands for projectiles, and brass discs for 75 mm. and 155 mm. shells.
- BRANDEGEE, M. M. (X) Chemical Engr., and Asst. to Chief Chemist and Vice-Pres., International Coal Products Corp., New York City, working on design and cons. of by-product apparatus; research work on cracking of oils for toluol. (Page 394.)
- BREATH, ALEXANDER (XI) Chief Sn. Inspector, Red Cross Unit No. 4, Camp Dodge, Iowa, engaged in extra-cantonment navigation, Aug. '17—Apr. '18. See Military Record.
- BUSH, V. (VI) Consulting Engr., American Radio and Research Corp., Medford Hillside, Mass., developing and mfg. apparatus for Navy and Sig. C.; Assoc. Member, Naval Consulting Bd., and Special Naval Bd. on submarine devices in development of submarine detectors.
- CALDWELL, A. P., JR. (VI) Asst. to Vice-Pres. in charge of ordnance, New York Air Brake Co., New York City, 18 June '17; Inst., U. S. School of Military Aeronautics, Princeton University, Princeton, N. J., 5 Dec. '17—18 May '18. See Military Record.
- CHANDLER, C. H. (V) Asst. Chemist, Naval Torpedo Station, Newport, R. I., doing research work for mfr. of torpedoes and explosive detonators, and developing electrolytic process of plating torpedo air flasks and other parts of torpedo with non-corrosive coating of pure lead and lead-tin alloys.

REGISTER OF CIVILIAN RECORDS

- CHANDLER, F. D. (VI) Electrical Engr., later Technical Ex. and Mgr., Chandler Engineering Corp., Brooklyn, N. Y., doing experimental and development work on torpedoes and submarine detectors.
- CHANDLER, W. S., Asst. to Cuban Representative, U. S. Food and Fuel Adm., Havana, Cuba, Dec. '17—April '18. See Military Record.
- COFFIN, W. E. (II) (XI) Junior Chemist, Research Div., C. W. S., at Laboratories of L. H. Shaw, Boston, Mass.
- COMISKEY, D. L. (I) Inspector, Yard Maintenance, Bethlehem Shipbuilding Corp., U. S. Emergency Fleet Corp., Quincy, Mass., 1 Feb.—1 Sept. '18. See Military Record.
- CONNOLLY, J. J. (XI) Sn. Engr., Red Cross Sn. Service, Camp Gordon, Ga., 22 Sept. '17—28 Feb. '18; Member, American Relief Comm., Syria, Turkey and Armenia, building hospitals and rebuilding Armenian houses and villages and providing sanitation in refugee camps, 15 Jan '19. See Military Record.
- CROSIER, C. L. (XI) Asst. Engr., Morris Knowles, Inc., Pittsburgh, Pa.; investigated and reported on water supply and sewerage systems for communities mfg. war materials.
- CROWELL, G. I. (II) Asst. Engr., Field Engr., and later Asst. Supt., Westinghouse, Church, Kerr & Co., New York City; at Cleveland, Ohio, erecting a shell forging plant; Progress Engr., Muscle Shoals, Ala., on cons. of Nitrate Plant No. 2.
- DAVIES, R. V. (V) Chief Chemist, U. S. Cartridge Co., Lowell, Mass., mfg. small arms ammunition.
- DELABARRE, L. H. (VI) (XV) Chief Inspector, American Ammunition Co., mfg. combination fuses, detonators, hand and rifle grenades and primers, '16; Asst. to Mechanical Engr., Bullard Engineering Works, Bullard Machine Tool Co., Bridgeport, Conn., mfg. 155 mm. field guns. See Military Record.
- DESMOND, R. R. (VI) Junior Inspector of Ordn., Ord. Dept. at U. S. Light & Heat Corp., Niagara Falls, N. Y.; inspection of incoming adapters and booster casings, and of completed boosters for gas shells.
- DODGE, CHARLOTTE PHELPS (MRS. PARKER), (IV) Asst., Medical Sect., Council of National Defense, Washington, D. C., making charts and maps.
- DODGE, H. F. (VI) Engr., Western Electric Co., co-operating with U. S. Navy, in field work on development, installation and operation of shore station submarine detection systems at experimental stations, New York, and on New England Coast.
- DRAKE, F. E., JR. (II) Asst. to Field Supt., Bethlehem Shipbuilding Corp. Ltd., Bethlehem, Pa.
- DRUMMEY, W. W. (IV) Asst. to Production Engr., Emergency Fleet Corp., Bethlehem Shipbuilding Corp., west of Mississippi River and at Quincy, Mass.; located material for 61 torpedo boats. Rejected for service because of physical defect.
- DUNN, D. O. (IV) Supt. of Cons., Hubbell & Benes, Cleveland, Ohio, on work at National Malleable Castings Co. Rejected for Army and Navy for physical disability.
- DURSIN, HENRY, JR. (II) Asst. Mgr., Lafayette Worsted Co., Woonsocket, R. I., in charge of power plant, and wool grease and potash recovery.
- *EASLEY, C. B. (VI) Military Inst., Ground Sch. of Aviation, M. I. T., '17. Died, 20 Jan. '20. See Military Record.
- EDWARDS, E. A. (VI) (II) Office Mgr., Schumaker-Lantry Co., Boston, Mass., mfg. turbines for Army and Navy, machinery for arsenals, navy yards, govt. warehouses, and power plants. Rejected in the draft and for naval aviation for underweight.
- ENGSTROM, K. E. (II) Machine Gun Inst., Springfield Armory, Mass., June—Aug. '16 and Apr. '17 to end of war; Inf. Sch. of Arms, Ft. Sill, Okla., Aug. '16—Apr. '17.
- EVANS, J. M. (II) Inspector of Airplanes and Airplane Engines for Sig. C., at Curtiss Aeroplane Corp., Buffalo, N. Y., and Standard Aeroplane Corp., Plainfield and Elizabeth, N. J., 15 Oct. '17. See Military Record.
- FAIR, G. M. (XI) Inst., Hygiene and Sanitation, S. A. T. C., Harvard University, Oct.—Dec. '18. See Military Record.
- FAIRFIELD, J. G. (II) Inspector, U. S. Fuel Administration; Machinist, Watervliet Arsenal, N. Y.; Inst., Mechanical Engr., S. A. T. C., Rensselaer Polytechnic Institute, Troy, N. Y.
- FLEMING, W. H. (II) Production Engr., Goodyear Tire & Rubber Co., Akron, Ohio, speeding up production of gas masks, airplane bumpers, rings and other rubber articles for Govt. (Page 401.)
- FLETCHER, R. A. (I) Inst., Machine Guns and Bombs, Naval Aviation Detachment, M. I. T., 27 Aug.—21 Nov. '17. See Military Record.
- FOOTE, F. C. (I, XI) Asst. Engr. with Supervising Engr., in charge of temporary water supply and camp sanitation, Camp Meade Contractors' Camp, Md., Cantonment Cons. Div., Q. M. C., 26 June—31 Aug. '17. See Military Record.
- FOSTER, H. L. (XI) Inst., School of Military Aeronautics, M. I. T., 12 Feb.—7 Sept. '18.
- FREED, E. S. (V) Research Chemist, Nitrate Div., War Dept., worked on development of a catalyzer for Haber ammonia process, and made study of conversion of nitrogen peroxide gases to nitric acid.
- FREEMAN, E. E. (VI) Chairman, Installation Comm., Equipment Engineering Staff, Winchester Repeating Arms Co., New Haven, Conn., mfg. arms and munitions.
- FREEMAN, J. R., JR. (XIV) Asst. Physicist, Dept. of Metallurgy, Bu. of Standards, Washington, D. C., developing special light alloys for aircraft construction.

TECHNOLOGY'S WAR RECORD

- GORDON, B. D. (X) Asst. Chemist, Bu. of Standards, Washington, D. C., working on investigations on hydrogen and helium gases for balloon purposes.
- GORE, JOHN (X) Junior Gas Chemist, Bu. of Mines, American University Experiment Station, Washington, D. C., working on pyrotechnic signals and camouflage smokes, developing navy smoke box, and army smoke candles, also a series of colored smoke signals for Army and Navy, Nov. '17. See Military Record.
- GRAVES, W. L. (VI) Statistical Expert, Progress Sect., Ord. Dept., Washington, D. C., 8 Jan. '17—June '18, pending issuance of commission. See Military Record.
- GRAY, H. P. (II) Technical Representative, Goodyear Tire & Rubber Co., with A. E. F., Nov. '17—Feb. '19; experimental and service work on gas masks, balloons, and tires supplied by Goodyear Tire & Rubber Co. to A. E. F. He says, "My hardest work was dodging the French Secret Service and trying to prove I wasn't a Boche. A civilian in France was out o' luck." (Page 401.)
- GREEN, H. W. (XI) Chemist, acting as Sn. Engr., Miraflores Water Purification Plant, Panama Canal.
- GROSS, C. F. (XIII) Inst., Marine Engineering and Naval Construction, U. S. Naval Academy, Annapolis, Md., '16—'18.
- GRUBER, R. E. (X) Chemical Engr., Merck & Co., Chemical Works, Rahway, N. J., in charge of research, and production of synthetic drugs and medicinal chemicals for Army, Navy, Red Cross, hospitals and clinics in U. S.
- GUNTS, R. F. (VI) Production Engr., Dept. of Methods and Operations, later Planning Engr., Dept. of Standards, American International Shipbuilding Corp., Emergency Fleet Corp., Hog Island, Pa.
- GUPTILL, A. L. (IV) Inst., Structural Engr., S. A. T. C., Pratt Institute, Brooklyn.
- GUSS, M. C. (I) Representative, Standard Oil Co., in interior of China. Told to stay in his position until called by U. S. Govt. into active service.
- HALE, E. D. (X) Chemical Engr., Pittsburgh Plant, Liquid Carbonic Co.; Educational Director, Navy Y. M. C. A., Great Lakes Naval Training Station, Feb. '18. See Military Record.
- HALE, G. R. (VI) Supt., Canadian Electrode Co. and Elect. Engr., and Staff Asst., Canada Carbide Co., mfg. acetone and acetic acid from acetylene for dope for airplane construction, for British and U. S. Govts.
- HALL, E. R. (IV) Foreman and Asst. Shop Supt., Bartlett Hayward Company, Baltimore, Md., loading time, percussion and detonating fuses for Russian, British and U. S. Govts.
- HANFORD, E. F. (XIII) Naval Engr., Bayles Shipyard, Port Jefferson, Long Island.
- HARROWER, P. D. (II) Machine Gun Inst., Ord. Dept., Springfield, Mass., Utica, N. Y., Camp Greene, N. C., and Camp Mills, L. I., N. Y., 3 June—20 Dec. '17. See Military Record.
- HART, R. F. (XIII) Quartermen Shipfitter, Bethlehem Shipbuilding Corp., Fore River and Squantum Plants, Quincy, Mass., in charge of hull construction of submarines AA2 and AA3 (cruising type).
- HEFLER, R. E. (I) Resident Engr., on new cons., Galena Signal Oil Co., Elizabeth, N. J. See Military Record.
- HEPINSTALL, JACK (I) Asst. Cons. Engr., later Supervising Engr., Bu. of Yards and Docks, Navy Dept., working on cons. and design of steel plants at Erie Forge & Steel Co. Plant, Erie, Pa., Pollack Steel Co., Cincinnati, Ohio, Allis Chalmers Heat Treatment Building, Milwaukee, Wis., and U. S. Naval Ordnance Plant, Charleston, W. Va. Inst., Naval Aviation Detachment, M. I. T., Oct. '18.
- HEWINS, E. F. (XIII) Draftsman, Engr. Dept., Newport News Shipbuilding & Dry Dock Co., Va., on battleship, battlecruiser and repair work; Special Representative to a western mfg. company, to report on progress being made on main shafting for eighteen destroyers.
- HICKEY, J. J. (XI) Structural Steel Draftsman, Navy Dept., Washington D. C.; Checker, in charge structural steel, Power Plant Div.
- HOLMES, E. O. (X) High Explosive Chemist, Eastern Laboratories, Gibbstown, N. J., E. I. du Pont de Nemours & Co., Wilmington, Del., doing research on mfr. on new high explosives.
- HOWARD, W. F. (IV) Asst. Engr., Northport Smelting & Refining Co., Wash., producing lead.
- HUNT, F. S. (X) Asst. Mgr., Hunt-Rankin Leather Co., Peabody, Mass., making navy leather for Navy Dept.; Student, Harvard-Technology Sch. of Public Health, training to enter Sn. C., 10 June—7 Sept. '18.
- HUSTED, D. R. (XIV) Aero Engr., in charge of aerodynamical laboratories, Curtiss Engineering Corp., Garden City, L. I. (Page 244.)
- INGLE, J. B. (II) Rubber Buyer, The Goodyear Tire & Rubber Co., in Straits Settlements, Sumatra and Java; prepared crude rubber for export under supervision of the War Trade Bd.; Member, American Contingent of Singapore Volunteer Corps, a British unit for local defense. (Page 401.)
- JACKSON, H. W. (IV) Asst., Packing and Boxing Sect., Bu. of Aircraft Production, Cleveland, Ohio, and Washington, D. C., designing boxes and methods of packing airplanes and airplane parts.
- JENKINS, E. S. (I) Research Asst. and Mathematical Designer, Curtiss Engineering Corp., Garden City, L. I.
- JOHNSON, E. B. (VII) Chief Sn. Inspector, Red Cross, in charge field work on malaria control, extra-cantonment zone, Montgomery, Ala. Transferred to U. S. Public Health Service, Chief Sn. Inspector, May '18; Asst. Sn. Engr., in charge malaria control, extra-cantonment zone, and installation sanitary system, Montgomery, Ala., 1 Nov.; Sn. Officer, U. S. Public Health Service Hospital, Greenville, S. C.
- JUNKINS, W. H. (VII) Sn. Inspector, and Health Officer, later Asst. Sn. Supt., du Pont Engineering Company, Nashville, Tenn., mfg. smokeless powder.

REGISTER OF CIVILIAN RECORDS

- KALLEJIAN, R. M. (V) Chemist, American Cotton Oil Co., Guttenburg, N. J., mfg. cooking oil, lard compound, and soap powder.
- KEMP, E. L. (II) Reorganizer, under Asst. Sec. of War, War Dept., Washington, D. C.; Mechanical Engr., Victory Plant, Bethlehem Shipbuilding Corp., Squantum, Mass.
- KNOWLAND, R. G. (X) Asst., later Chem. Engr., Bu. of Mines, and C. W. S., Washington, D. C., doing emergency work on gas protection, Jan—Aug. '18. See Civilian Record.
- LEWIS, C. F. (I) Inspector, Bu. of Public Roads, Dept. of Agriculture, in charge of surveys for and cons. of roads at Gas Shell Filling Station, Edgewood Arsenal, Md., Apr.—Aug. '18, and between Alexandria and Camp Humphreys, Va., Aug.—Oct. '18.
- LIDDELL, W. A. (I) Asst. Engr. on toll line efficiency, American Telephone & Telegraph Co., New York, 1 Aug. '17—1 May '18; engineering work connected with planning toll line facilities radiating from Washington to various army and navy headquarters, and cantonments. See Military Record.
- LITTLEFIELD, L. H. (VI) Senior Aeronautical Mech. Engr., Bu. of Aircraft Production, at various stations, 27 June—15 Mch. '19. Request for a commission as Engr. Capt., A. S., favorably acted upon, but stopped by the armistice.
- LONG, W. E. (XII) Asst. Foreman Ship Fitter on Torpedo Boat Destroyers, Fore River Plant, Bethlehem Shipbuilding Corp., Squantum, Mass., Nov. '18.
- LOVELL, C. W. (I) Asst. on Engr. Corps, Pittsburgh, Cincinnati, Chicago & St. Louis R. R. (Pennsylvania Lines West of Pittsburgh, Pa.); Resident Engr., New Cumberland Branch Extension, for developing new coal fields.
- LOWE, R. E. (V) Electrometallurgist and Plant Mgr., Maine Power Sales Co., Rumford, Maine, mfg. ferro alloys.
- McDEVITT, J. N. (H) Vice-Pres. and Treas., Lincoln Machine Co., Pawtucket, R. I., producing munitions for Allies and U. S.
- McKOWN, F. W. (VI) Engr., Western Electric Co., New York City, worked on design of special telephone sets for military purposes, and of anti-submarine devices.
- MAHLMAN, O. L. (XIV) Consulting Chemical Engr., Bu. of Mines, mfg. carbon for Gas Defense, 30 May—23 Aug. '17. See Military Record.
- MELLEN, E. R. (VI) Correspondent Engr., Weston Electrical Instrument Co., Newark, N. J., in charge of correspondence with Govt. and private individuals on highly specialized electrical indicating instruments for wireless, signal, and ordnance purposes. Tried four times to enlist in Army or Navy, but failed.
- MERRITT, J. C. (VI) Meter Engr., '17, Power Sales Engr., '18, and Transmission Line Supt., '19, Shawinigan Water & Power Co., Montreal, P. Q., producing power for munitions and industries mfg. aluminum, magnesium, carbide, acetic acid, ferro-silicon, ferro-chromium, and shells.
- MILLER, DOROTHY DAY, (MRS. T. W.) (VII) Sec., Home Service Sect., Red Cross, Augusta, Ga.
- MILLS, R. H. (VI) Cable Engr., Western Union Telegraph Co., Engr., Western Electric Co., on development of submarine detection apparatus for the Navy, at Nahant, Mass.
- MONROE, M. A. (XI) Designer and Estimator, Pittsburgh-Des Moines Steel Co., furnishing steel to Govt. for tanks at Nitrate Plant, Nitro, W. Va., ship plates for Submarine Boat Corp., towers for observation purposes, Aberdeen, Md., and Mulberry Island, Va., and for overseas shipment. See Military Record.
- MORSE, H. G. (H) Engr., Angus Co. Ltd., Calcutta, India. Left 10 Apr. '18, to enlist. See Military Record.
- MOXON, H. A. (X) Chemist, New England Manufacturing Co., doing chemical control work on picric acid and phenol. See Military Record.
- MUESER, ELSA HABICHT, (MRS. E. E.) (V) Research Chemist, The Celluloid Company, Newark, N. J., H. Koppers Company at Mellon Institute of Industrial Research, Pittsburgh, Pa., and for United Engineering Societies; research chemical work in the laboratory and researches in French and German literature on chemical subjects.
- NEAVE, A. S. (X) Chemist, Chatfield Manufacturing Co., Cincinnati, Ohio, working on coal tar distillation, purification of naphthalene and phenol, creosote oil, pitches and sheep dips; Chemical Engr., later Plant Supt., Wiborg Co., Cincinnati, mfg. printing inks, varnishes, dry color, dyestuff and intermediates.
- NEWCOMBE, G. M. (H) Engr., Gun Design and Explosives Divs., Engineering Bu., Ord. Dept., Washington, D. C.; Dist. Inspector, machinery and equipment of explosives plants. See Military Record.
- NIBECKER, A. S., JR. (IV) Checker of structural drawings, later Supt. of Cons., Pacific Marine & Construction Co., San Diego, Calif., building reinforced concrete ships, Emergency Fleet Corp.
- OBBER, SHATSWELL (XIII) Naval Architect, Bath Iron Works, Maine, designing torpedo boat destroyers for Navy; Aeronautical Engr., Research Dept., Airplane Engineering Dept., Bu. of Aircraft Production; stationed at Aero Laboratory, M. I. T., Nov. '17 and McCook Field, Dayton, Ohio, Aug. '18—Feb. '19, making experiments and tests of model and full sized airplanes to improve performance and simplify design.
- OWLER, D. S. (VI) Asst. Supt., Fall River Electric Light Co., Mass., laying out substations to transform and control power at cotton mills mfg. war materials, and supervising power and lighting distribution.
- PAGE, ARVIN (II) Machine Gun Inst., Ord. Dept., 29 May '17—5 Dec. '17. See Military Record.
- PARSONS, T. D. (H) Asst. to Cutlery Engr., Winchester Repeating Arms Co., New Haven, Conn.; production control of mfr. of machine guns and U. S. Rifles, Model of 1917.

TECHNOLOGY'S WAR RECORD

- PITMAN, E. C. (X) Supt., Brown Co., Berlin, N. H., mfg. sulphur chloride, and acetic anhydride for Govt. for mustard gas; Supt., Lustron Co., Boston, Mass., mfg. cellulose acetate for airplane dope and windshields.
- PIZZORNO, P. P. (VI) Tester and Test Calculator, General Electric Co., Lynn, Mass., in charge of special A. C. Motor tests. Jr. Electrical Draftsman, Stone & Webster, on Rock Island and Watertown Arsenals; in charge of Electrical Drafting Rooms, American Railways Co., Philadelphia, Pa.
- PROCTOR, H. E. (VI) Electrical Designer with Monks & Johnson and Fay, Spofford & Thorndike, and Electrical Engr. with Richard D. Kimble Co., on design of electrical work, Squantum Plant, and Army Supply Base, South Boston, Mass.
- REESE, R. C. (I) Chief Draftsman, Building Dept., General Electric Co., Pittsfield, Mass., maintaining and constructing buildings for Pittsfield Works.
- ROBERTSON, J. D. (II) Engr., Staff of Cartridge Dept., Winchester Repeating Arms Co., New Haven, Conn., June '16—Aug. 27, '17. See Military Record.
- ROSS, F. D. (IV) Adviser on Fire Protection to plants, U. S. Shipping Bd. See Military Record.
- ROWLETT, R. S. (II) Civilian Student and Inst., Machine Gun School, Springfield Armory, Mass., 1 June '17—11 Jan. '18. See Military Record.
- SAWENS, R. H. (X) Technical Asst., Caustic Soda Dept., Solvay Process Co., Syracuse, N. Y., doing work on picric acid, T. N. T., and recovery of waste acids, development of ammonia oxidation to nitric acid on heated platinum gauze as catalyst.
- SCHAEFFER, A. G. (II) Inspector of airplanes and airplane engines, Bu. of Aircraft Production, Standard Aircraft Corporation Plant, Elizabeth, N. J., and designer of dies, punches, and gauges.
- SHUEY, A. F. (XI) Supt., Tampa Water Works Co., Fla.
- SMITH, R. G. (VI) Statistician, The Milwaukee Electric Railway & Light Co., Wis. Unable to enter military service on account of heart.
- STOWELL, R. M. (IV) Architect, Cantonment, later Cons. Div., War Dept., Washington, D. C., June '17—'18.
- SWEET, G. A. (X) Foreman, by-product coke plant, The Youngstown Sheet & Tube Co., Ohio, extracting by-products from coke-oven gas.
- THEXTON, C. H. (IV) Supervising Engr., U. S. Shipping Bd., in charge of costs and progress of housing projects from Bath, Maine, to Jacksonville, Fla. and west to Manitowoc, Wis.
- ULLIAN, H. B. (I) Engr., connected with layout of Camp Custer, Mich., Aviation Station, Langley Field, Va., and Boston Army Supply Base. See Military Record.
- UPTON, F. P. (VIII) Laboratory Asst., later Asst. Physicist, Aerodynamical Laboratory, U. S. Bu. of Standards, Washington, D. C., testing airplane models and equipment, radio forms, bomb releases, radiators and air speed indicators. See Military Record.
- WAREHAM, C. M. (XI) Inst., Dept. of Chemistry, M. I. T., and Inst., S. A. T. C. and S. N. T. C.
- WEBSTER, D. B. (X) Civilian Student and Inst., Machine Gun School, Springfield Armory, Mass., July—Nov. '17. See Military Record.
- WEISSBACH, E. A. (II) Mech. Engr., Mallinckrodt Chemical Works, St. Louis, Mo., in charge of erection of stills for mfr. of ether for Medical Corps.
- WELLINGTON, M. S. (XI) Sn. Engr., Wallace & Tieman Co., New York City. See Military Record.
- WENTWORTH, W. E. (XIV) Supervisor of nitrating and of solvent recovery, E. I. du Pont de Nemours & Co., mfg. celluloid for powder containers, Jan. '18. See Military Record.
- WHITE, H. E. (II) Civilian Machine Gun Inst., Ord. Dept., June '17; Camp Ord. Depot, Camp Hancock, Ga., in charge of repair and inspection of Springfield rifles and all types of machine guns, Aug.—Dec. '17. See Military Record.
- WHITING, E. A. (II) Sales Agent, The Allied Machinery Co. of America and The Allied Machinery Co. of France, exporting machine tools and shell-turning lathes, and purchasing stock, Sept. '16—Dec. '17. See Military Record.
- WHITTEMORE, H. E. (VI) Electrician, Skinner & Eddy Corp., Seattle, Wash., in charge installation and maintenance of yard equipment, June—Oct. '18. See Military Record.
- WILSON, R. E. (X) Consulting Chemical Engr., Bu. of Mines, Washington, D. C.; Gas Chemist, in charge of defense chemical research work on absorbents, smoke production, mustard gas protection, etc., Feb. '18; in charge of first Govt. research laboratory on war gas problems; in charge of two units of Defense Chemical Research Sect., C. W. S.; worked on development of all types of gas absorbents, smoke filters, smoke producing apparatus, protective clothing, and ointments for mustard gas. See Military Record and page 258.
- WOOD, E. C. (II) Inst., School of Military Aeronautics, M. I. T., Aug. '17; Engr., in charge experimental testing, Wright-Martin Aircraft Corp., Sept. '18—Feb. '19. See Military Record.
- WRIGHT, L. S. (XV) Production Engr., Dayton-Wright Airplane Co., Dayton, Ohio, Oct. '17—Oct. '18, making J-1 training planes, and DH-4 and DH-9 bombing and fighting planes. See Military Record.
- WYMAN, G. W. (VI) Inst. in Gas Engines and Machine Guns and Gunnery, School of Military Aeronautics, M. I. T., Aug. '17—1 Mch. '18. See Military Record.
- ZILLIACUS, LAURIN (X) Chemical Engr. for research work on poison gas respirators in factory of Messrs. Boots Pure Drug Co., Nottingham, England, '17. Poisoned by arsenic, July, and obliged to stop work. Inst. of Mathematics, Bedales School, Petersfield, England.

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1917

- ABELE, C. A. (VII) Scientific Asst., U. S. Public Health Service. Chief Sn. Inspector, Red Cross Sn. Unit, No. 8, Camp McClellan Extra-cantonment Zone, Anniston, Ala., Sept. '17; Director, Bu. of Venereal Disease, State Bd. of Health, Jackson, Miss., Feb. '19.
- ADAMS, C. C. (X) Research Chemist, du Pont Powder Co., N. J. Research work on diphenylamine used as a stabilizer in smokeless powder; Member, Secret Govt. Post, Willoughby, Ohio, working on design of chemical plant for mfr. of the new gas, "methyl." See Military Record.
- ALDRIN, E. E. (VI) Member, National Advisory Comm. for Aeronautics; Asst., Aerodynamical Experimentation, Wind Tunnel at M. I. T., June—Oct. '17. See Military Record.
- ALTHOUSE, A. K. (XV) General Supt., Phoenix & Georges Creek Mining Co., in charge of operation of Phoenix Mine (coal), Piedmont, W. Va., before enlistment. See Military Record.
- AMES, N. B. (VI) Radio and Electrical Draftsman, National Electrical Supply Co., Washington, D. C., 8 June—24 Nov. '18, working on design and construction of radio apparatus for U. S. Sig. C., and Navy. See Military Record.
- ANGAS, W. M. (I) Inst. in Navigation, Navigation School, Boston, Mass., and later in Baltimore, Md., under the U. S. Shipping Bd. See Military Record.
- ATKINS, W. E. (II) Overseer of Maintenance, Fairbanks-Morse, Ltd., Toronto, Ont., producing 18 lb. shrapnel, 75 mm. and 6" and 8" shells.
- ATWATER, DAVID (XV) Supt., Atwater Knitting Co., Westfield, Mass., mfg. knit goods for Army. Enlisted in Sig. C., but unable to meet physical requirements.
- AUTY, CLARENCE (VI) worked on design of power plant for Bethlehem Loading Co., May's Landing, N. J.; worked on fuel conservation in Mass., especially for American Writing Paper Co., Holyoke, Mass.
- AYER, H. E. (IV) Asst. Engr., Aberthaw Construction Co., Boston, Mass., 19 Nov. '17—9 Mch. '18, working on cons. of a steel building for the Mattatuck Manufacturing Co., Waterbury, Conn., for the making of cartridge clips for the Allied Armies; worked, for same company, on a dry dock for the Cumberland Ship Yard, Portland, Maine, Mch.—Apr.; Dept. of Public Works, City of Portland, surveys, supervision of all cons. and repair work, and compiling of cost data, May '18—June '19. See Military Record.
- BAKER, A. DeW. (V) Research Chemist, E. I. du Pont de Nemours & Co.; Research Chemist, laboratory investigation, development and mfr. of dyestuffs, Eastern Laboratory, Gibbstown, N. J., June—Nov. '17; Asst. in charge of Div. Research Laboratories, and Div. plant operations, Jackson Laboratory, Deepwater Point, N. J., Nov. '17—Oct. '19; Representative of Chem. Dept., Intelligence Div., Jackson Laboratory, since Oct. '19.
- BATTIS, J. T. W. (II) Employment Mgr., Standard Woven Fabric Co., Walpole, Mass. See Military Record.
- BELL, K. E. (X) Research Chemist on high explosives, Eastern Laboratory, Gibbstown, N. J., E. I. du Pont de Nemours & Co., 1 June '17—14 Sept. '18; research on and development of new high explosives and secondary detonators, and improvements in mfr. of older high explosives. See Military Record.
- BERTELSEN, P. J. (IX) General Supt., Bertelsen & Petersen Engr. Co., East Boston, Mass., in charge of fitting out the Cincinnati, of the Hamburg-American Line, as a troop ship, renamed the Covington. See Military Record.
- BICKNELL, ESTHER W. (VII) Worker, Red Cross, Special Aid Society American Preparedness, War Camp Community Service, War Savings Stamp Drive.
- BIRK, G. M. (X) Chemist, The Napco Co., Indianapolis, Ind.; developed new waterproof glue for airplane and seaplane use.
- BLAKEMORE, T. L. (XIII) Aeronautical Engr., Bu. Cons. and Repair, Navy Dept., supervising lighter-than-aircraft design and cons., Washington, D. C., and Akron, Ohio; Engr. in direct charge of design of first twin engine dirigible flown in this country. (Page 26.)
- BOND, B. M. (V) Material Engr., Paint and Varnish Dept., Bu. Chemistry, Washington, D. C.; research work.
- BONE, H. L. (II) Engr., Dept. of Tests, Remington Arms Union Metallic Cartridge Co., Bridgeport, Conn.
- BROCK, M. C. (XV) Asst. to Supt. of Production, Goodyear Tire & Rubber Co., Akron, Ohio, coordinating and upbuilding kite balloon and dirigible production. See Military Record and page 401.
- BROWN, D. M. (IV) Field Architect, J. G. White Engr. Corp. at Langley Field, Va., Aug. '17—Feb. '18. Continued same work after enlistment. See Military Record.
- BROWN, R. B. (X) worked under Professor Mulliken's direction at M. I. T. making poison gases (acrolein); Chemical Engr., Brockton Gas Light Co., Brockton, Mass.; supervised production of light oil (benzene, toluene, solvent, etc.), for Govt. Rejected four times for military service on account of physical disability.
- BURKHART, T. W. (II) Junior Inspector of Naval Cons., Boston and Norfolk Navy Yards, Navy Dept. Completed first intensive course in Naval Architecture at M. I. T. and Boston Navy Yard, Nov. '17; Inspector, Norfolk Navy Yard, Dec. '17—July '10, in charge of organization and management of tool service and shop stores to meet war needs.
- BUTTERWORTH, F. L. (IV) Inspector, Naval Cons., Navy Yard, Philadelphia, Pa. See Military Record.
- CAMPBELL, J. W. (I) Commercial Asst. The Angus Co., Ltd., Calcutta, India; mfr. and shipment of trench sandbags, cloth and twine made from jute for use by the Allied Forces in France, Russia, Italy and Mesopotamia, and bags for carrying wheat to Europe from Argentina and U. S.

TECHNOLOGY'S WAR RECORD

- CANBY, A. T. (X) Research Chemist on explosives, E. I. du Pont de Nemours & Co.; experimental work for the Ord. Dept., loading and testing various new bombs, shells, grenades, boosters for gas shells, etc., Eastern Laboratory, Gibbstown, N. J.
- CHANG, Y. T. (X) Asst. Chemical Engr., Nitrate Plant No. 2, Muscle Shoals, Ala.
- CHISHOLM, H. V. (II) Products Engr., Walworth Manufacturing Co., Boston, Mass., estimating on and handling specifications for brass and iron products for U. S. Navy, and U. S. Shipping Bd.
- CLARK, E. L. (VI) worked in connection with tests on ship turbines, General Electric Co., Schenectady, N. Y., summer '18.
- CLARKSON, J. J. (II) Laboratory Div., Heat Treatment of Steels, Winchester Repeating Arms Co., New Haven, Conn., until 1 Dec. '17. See Military Record.
- CLAYMAN, SAMUEL (X) Chemist, Arthur D. Little, Inc.; research on gas warfare in conjunction with C. W. S., U. S. A.
- COAKLEY, C. C. (X) Operating Chemist, National Aniline & Chemical Co., mfg. dinitro-toluol and benzol for intermediates in khaki brown.
- CRANE, F. N. (I) Junior Inspector of Naval Cons., Squantum, Mass. Ships Draftsman, 2 July '17; Junior Inspector of Naval Cons., Navy Dept., Charlestown Navy Yard, supervision of repairs and alterations to various naval vessels, 24 Nov.; inspection work on destroyers building at Squantum Works, 9 Nov. '18 to date (Aug. '19).
- CRIBBEN, L. T. (II) with Goodyear Tire & Rubber Co., Akron, Ohio, on development of pneumatic tires for heavy trucks. (Page 401.)
- CRONIN, J. T. (IV) Inst., School of Military Aeronautics, M. I. T., Feb.—Aug. '18; Editor of Manual for Guidance and Information of Govt. Inspectors of Airplanes and Airplane Engines; Bu. Aircraft Production, Washington, D. C., Sept. '18—15 Apr. '19.
- CROWELL, C. C. (IV, II) Aeronautical Engr., Experimental Dept., Standard Aero Corp. of New York, June '17—Jan. '19; in charge of engr. calculations and experimental testing of airplanes; assisted in design of Standard Models E-1, E-4, E-5A, E-5B, E-6, and E-10.
- DANIELS, SAMUEL (III) Metallurgical Engr., Greenfield Tap & Die Corp., Greenfield, Mass., '17—'18; Bu. of Aircraft Production, New York City, '18; Air Service, Engr. Div., Dayton, Ohio, '19; supervision, Metallurgical Dept., of research and production work in mfr. of tools, machinery, gauges, ammunition, and airplane motors; research work in connection with development of 30-caliber armor-piercing bullet, involving extensive research with alloy steels.
- DEAN, C. M. (X) Asst. Dept. Head, Merrimac Chemical Co., Woburn, Mass., supervising mfr. of nitric, muriatic, and acetic acids, Glaubers salt, and miscellaneous chemicals. See Military Record.
- DEMERITT, J. E. (XI) Motor Inspector, U. S. Naval Aviation Detachment, M. I. T. (Pages 40 and 41.)
- DICKSON, J. B. (V) Chemist, Bu. of Mines, working on standardization of gas mask testing, 21 Feb.—12 Sept. '18. See Military Record.
- DODGE, B. F. (X) Chem. Engr., E. I. du Pont de Nemours & Co., Eastern Laboratory, Gibbstown, N. J., 1 June '17; did research work on amatol, and process for filling shells; aided in starting operations at U. S. Shell-loading Plant, Penniman, Va., remained there in charge of chemical engr. experimental work, 17 June—21 Nov. '18.
- DONOVAN, G. W. (II) Asst. to Div. Engr., Equipment Div., Fay, Spofford, & Thorndike, Designing and Supervising Engrs., Boston Army Supply Base. Twice rejected for military service, due to physical disability.
- DROBISCH, RAYMOND (II) Aeronautical Designer, Goodyear Tire & Rubber Co., Akron, Ohio, working on balloon design and development.
- DUNHAM, A. P. (II) Machine Gun Inst., Ord. Dept., Springfield Armory, Mass., and Waco, Texas, 13 June—9 Oct. '17. See Military Record.
- DU PONT, F. V. (I) Supervisor, Airplane Dept., School of Military Aeronautics, M. I. T.; Inst., Naval Aviation Detachment and also Merchant Marine School, U. S. Shipping Bd., M. I. T. (Page 12.)
- EATON, I. C. (XIV) Asst. Supt., Union Carbide Co. of Canada, Ltd., Welland, Ontario, in charge of operation and production.
- ERB, R. C. (XV) Civilian at Gas Defense Plant, Long Island City, N. Y., Jan.—Aug. '18. See Military Record.
- FARR, W. G. (II) Ship Draftsman, U. S. N., Charlestown, Mass., 1 July—13 Nov. '17. See Military Record.
- FAY, R. D. (VI) Engr. in charge, anti-submarine experimental station, Nahant, Mass. U. S. Navy Dept., General Electric Co., Submarine Sig. Co., and Western Electric Co., cooperating; Sec. of the Group (to Special Naval Bd.), and assisted in the developments. See Military Record.
- FERRITTI, A. J. (II) Inst., Mech. Engr., Northeastern College; Inst., Mech. Engr. Drawing, Merchant Marine School, M. I. T., and Mech. Engr., S. A. T. C., Northeastern College. Draftsman on design of tank America.
- FISHER, J. C. (VI) Asst. Elect. Engr., Bu. of Standards, developing sound ranging apparatus for Engr. C.; fifteen months at home, abroad six weeks, returned because of armistice.
- FORD, F. L. (IV, XIII) Aeronautical Engr., Engr. Div., A. S.; Experimental Research work in aerodynamics, M. I. T. Aerodynamical Laboratory, and at McCook Field, Dayton, Ohio.

REGISTER OF CIVILIAN RECORDS

- FORD, W. B. (IV) Chief Draftsman, Aeromarine Plane & Motor Co., Keyport, N. J., Airplane Mfrs.; Liaison Officer, representing Production Engr. Dept., Bu. of Aircraft Production, U. S. A., Dayton, Ohio, at Detroit, acted as clearing house for all correspondence and engr. information regarding planes affecting Detroit Dist. of Production.
- FOSS, F. D. (XI) Structural Engr., F. T. Ley & Co., Inc., on govt. cons.; Cons., shipyard, Merchant Shipbuilding Corp., Bristol, Pa.; Design, 13 buildings, Virginia Shipbuilding Corp., Alexandria, Va.; Design, two buildings, Watervliet Arsenal, N. Y.; designed and detailed three buildings, Staten Island Shipbuilding Corp., Staten Island, N. Y.; Design, explosives plant, Senter, Mich.; Design, Aerial Bomb Loading Plant, Rockwell Park, Del.
- FREED, SAMUEL (V) Chemist, Naval Proving Grounds, Indian Head, Md., working on explosives.
- GAGNON, JULES (VII) Chemist, North Star Chemical Works, Lawrence, Mass., June '17, furnished lanolin for Govt. for anti-gas work; Sn. Bacteriologist and Industrial Hygienist, U. S. Public Health Service, Nitro, W. Va., Aug. '18—Feb. '19, in charge of water situation at U. S. Explosives Plant "C."
- GAMAGE, F. L., JR. (VI) Research Engr., Scovill Manufacturing Co., Waterbury, Conn., doing electrical research work.
- GANNETT, ROBERT (II) Asst. to Engr. in charge, Bijur Motor Appliance Co., June '17—June '18, working on development of starting and lighting equipment for motor trucks, tanks, airplanes and dirigibles. See Military Record.
- GARGAN, J. A. (XV) in Planning Dept., Gas Defense Plant, L. I. Qualified for 2d Lt., U. S. Marine C., not accepted for physical reasons.
- GAUGER, R. R. (IV) Architectural work and specifications, Hospital Sect., Bu. of Yards and Docks, Navy Dept., Washington, D. C.
- GAUS, G. H. (II, VI) Machine Gun Inst., Ord. Dept., Springfield Armory, Mass., 1 June '17; Camp Fremont, Calif., 15 Aug.—15 Nov. '17. See Military Record.
- GAY, R. N. (XV) with Sturtevant Aeroplane Co., working on govt. contract with Stone & Webster, on the Ord. Base Depot in France; American International Shipbuilding Corp., Hog Island, Pa. See Military Record.
- GIBBON, C. O. (VI) Special Lecturer, U. S. A. Telephone Electrician Detachment, Franklin Union, Boston, Mass.
- GILLESPIE, K. A. (X) Research Chemist, Eastern Laboratory, E. I. du Pont de Nemours & Co., Gibbstown, N. J., developing and testing military explosives; developed an explosive for use as a bursting charge in hand grenades. See Military Record.
- GILLIARD, C. T. (II) Naval Inspector, Charlestown Navy Yard, Mass., supervisor of repair work and new cons., battleships, transports, and various naval vessels. One of the supervisors of repair work on the Mt. Vernon, Charlestown Navy Yard, after it was torpedoed.
- GILT, C. M. (VI) Testman, General Electric Co., Schenectady, N. Y., testing steam turbines for naval, merchant marine and industrial use; testing electrical apparatus for govt. requirements.
- GOLDSMITH, H. F. (X) Consulting Chem. Engr., J. S. Simson, Chem. Engrs., efficiency engineering for munition and essential industries, June '17—Apr. '18. See Military Record.
- GOODALE, FRANCIS (XI) Draftsman, Charlestown Navy Yard, Mass.; Junior Inspector of Naval Cons., 21 Nov. '17—3 July '18, Navy Yard, New York; supervision of repairs and cons. of naval vessels. See Military Record.
- GOUDEY, R. F. (XI) Asst. Engr., Calif. State Bd. of Health, July '17—Aug. '18; made sn. survey of Camp Fremont site, assisted in designing sewerage system, Camp Fremont, inspected water supply, Camp Fremont and Camp Kearny; Chief Chemist and Bacteriologist, Bu. of Sn. Engr., Berkeley, Calif., Aug.—Oct. '18. See Military Record.
- GRAY, G. A. (VI) Laboratory Asst., Gas Sect., Electrical Div., National Bu. of Standards, Washington, D. C.; asst. in making field tests on by-product ovens, chiefly high temperature measurement tests, for an engr. report to the Pres. of the U. S.
- GREEN, M. T. (XIII) Pres. and General Mgr., Richard T. Green Co., Chelsea, Mass., constructing and repairing steamers, towboats, barges, schooners, etc.; constructed annex to Charlestown Navy Yard, Mass.
- GURNEY, S. W. (IX) Chemical Engr., The Barrett Co., Philadelphia, Pa., doing work on synthetic phenol for U. S. and Allied Govts.
- HALL, B. T. (II) Asst. Mgr., Govt. Work Sect., Fabric Dept., Goodyear Tire & Rubber Co., Akron, Ohio; directly connected with purchasing, classifying and handling of textile materials used in balloon and gas mask work; on Aeronautical Council of factory.
- HAND, C. N. (X) in charge of the hydrogen plant, Goodyear Tire & Rubber Co., Akron, Ohio. (Page 399.)
- HATCH, F. M. (II) Mech. Engr., Goodyear Tire & Rubber Co., Akron, Ohio; Liquid Carbonic Co., Chicago, Ill.; Ord. Dept., Washington, D. C.; designed machine for filling shells with T. N. T.
- HENDERSON, G. W. (I) Ship Supt. on repair and new cons., Navy Dept.; Charlestown Navy Yard, 2 July—8 Dec. '17; Philadelphia Navy Yard, 8 Dec. '17—1 Dec. '18. See Military Record.
- HILLS, L. H. (XIV) Chemist, Carborundum Co., Niagara Falls, N. Y., doing research work on commercial production of silicon tetrachloride from carborundum and chlorine in the electric furnace. See Military Record.

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- HOFFMAN, L. A. (II) Asst. Engr., Dept. of Commerce, Bu. of Standards, Washington, D. C., working on investigation, testing and development of aeronautic instruments. Enlisted in Air Service, Dec. '17, never called to active duty. (Page 346.)
- HOLT, O. W. (II) Head following-up man on submarine work, Machine Shop, Bethlehem Shipbuilding Corp., Ltd., Fore River Plant, 1 May '17-'19.
- HOLTON, J. H. (X) Asst. Gas Chemist, War Gas Investigations Dept., Bu. of Mines, 5 June '17-14 Sept. '18; served at Akron, Ohio, Cleveland, Ohio, Washington, D. C., Pensacola, Fla., Langley Field, Va., Astoria, N. Y., Atlanta, Ga., and other eastern cities and camps, on design, cons., and operation of hydrogen gas plants, and development of high temperature furnaces for the activation of gas mask charcoal. See Military Record.
- HUANG, H. H. (III) Research Asst., National Tube Co., Pittsburgh, Pa., investigating special steels for Ord. Dept.
- HUBBARD, F. S. (I) reported Draftsman, Engr. C., Naval Aviation, Washington, D. C.
- KEACH, LEON (IV) took intensive course in Naval Architecture, M. I. T.; Charlestown Navy Yard, under direction of C. C., U. S. N.
- KEATING, A. E. (II) Asst. to Chief Engr. and Fuel Engr., American Tube & Stamping Co., Bridgeport, Conn.; reorganized producer plants supplying fuel gas for open-hearth furnaces, soaking pits, reheating furnaces, etc., acted as chief chemist and as govt. inspector. Rejected for military service on physical grounds. (Pages 41 and 60.)
- KENIGSBURG, A. H. (I) worked in shipyard, N. Y. Shipbuilding Corp., Camden, N. J., summer '17; Structural Draftsman, govt work, American Bridge Co., Gary, Ind., Sept. '18. Tried to enter active service, barred by citizenship, final citizenship papers obtained July '19.
- KIMBALL, H. M. (IV) Junior Inspector of Naval Cons., shipyards in the port of New York, U. S. Navy Dept., 2 July '17.
- LANE, K. M. (XI) Aeronautical-Structural Engr., Engr. Div., A. S., McCook Field, Dayton, Ohio, Dec. '17 to date (Aug. '19); Asst. to Chief, Research Dept., general aeronautical research in connection with design of American DH-4, aerodynamical computations, etc.; Chief, Static Test Sect., testing and reporting static tests of structural parts of airplanes. See Military Record.
- LAUER, L. M. (X) Asst. Supt., H-Acid Dept., Merrimac Chemical Co., Woburn, Mass.; developed process for mfr. of a dyestuff intermediate from laboratory to plant scale. (Page 394.)
- LEWITON, SAMUEL (II) Tool, Design and Engr. Depts., Remington Arms Co., Pratt & Whitney Co., Colt's Patent Fire Arms Mfg. Co., Sperry Gyroscope Co.; production and production methods, etc., on ordnance, army and navy supplies.
- LOW, C. E. (XV) Jr. Inspector of Naval Cons., Bu. of Cons. and Repair, U. S. N.; Charlestown Navy Yard; Camden, N. J., Dec. '17 to date (Aug. '19); Resident Inspector of cons. of 110' submarine chasers Nos. 381-385 and 426-430.
- LUNN, J. A. (II) Mechanical Engr., office of Northeastern Dept. Engr., U. S. Engr. Dept., Boston, Mass., Sept. '17-Jan. '18. See Military Record.
- McDONALD, R. E. (X) Analytical Chemist, later Night Supt., New England Manufacturing Co., North Woburn, Mass., 6 June '17-1 Nov. '18; handled control and specification work on benzol, phenol, and picric acid; general supervision of night shift mfg. these products. See Military Record.
- MAEDER, R. A. (II) Inspector of Naval Cons., Hull Div., Navy Dept., Boston, Mass.; Ship Supt. on repair and alteration work.
- MANN, H. G. (XV) Ballistic Inspector, Ord. Dept., Remington Arms Union Metallic Cartridge Works, Bridgeport, Conn.; transferred to Process Inspector, Remington Arms, Hoboken, N. J., May '18. See Military Record.
- MILLER, H. L. (VI) Machine Gun Inst. and Machine Gun Expert, Ord. Dept., Springfield Armory, Mass., until Nov. '17. See Military Record.
- MORTON, A. R. (VI) Radio Electrician, Radio Div., Bu. of Steam Engr., Navy Dept., New York City.; drafting, designing, inspecting of contractors' plants and product, and direction of radio installation work.
- MOULTON, R. S. (II) Inspector of Naval Cons., Navy Dept.; supervision of cons. and repair work on destroyers, gun boats, cruisers, etc., U. S. Navy Yards, Boston, Mass., and Charleston, S. C.
- MULLIKEN, R. S. (V) Junior Chemical Engr., American University Experiment Station, U. S. Bu. of Mines, Washington, D. C., doing organic chemical research on poison gases. Received severe mustard gas burn; in hospital, Mch.-Aug. '18. See Military Record.
- NEUBERG, W. D. (X) Engr. of Tests, Inspection Div., Metallurgical Sect., Ord. Dept., making physical and chemical tests on 3"-16" shells and 8"-12" guns, Wm. Wharton Co., Easton, Pa., Bethlehem Steel Co., Bethlehem, Pa., Tacony Ord. Corp., Philadelphia, Pa., and Eddystone Munitions Co., Eddystone, Pa.
- PALMER, R. B. (II) in Production Office, United States Cartridge Co., Lowell, Mass., June-Nov. '18. Pvt., Cav. Unit, Norwich University, Northfield, Vt., Sept. '16; 1st Sgt., Inf. Unit, University of Kentucky, Sept. '17. Not accepted for military service, owing to broken leg.
- PANETTIERE, VINCENT (II) Designer, Shell Gage Testing Div., Bu. of Standards, Washington, D. C., designing machines and instruments for testing all kinds of shell gages, June-Nov. '17; Poole Engineering & Machine Co., Baltimore, Md., designing engines and auxiliary machinery used on govt. war vessels, Nov. '17 to date (Oct. '19)

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- PARKER, D. H. (X) Explosives Engr., E. I. du Pont de Nemours & Co., in charge of preliminary operations, and technical adviser, Penniman Shell Loading Plant.
- PAYNE, E. B. (VI) Machine Gun Inst., U. S. Civil Service, Springfield Arsenal, Mass., previous to enlistment. See Military Record.
- PEACOCK, F. E. (I) Designer, American International Shipbuilding Corp., Hog Island, Pa., designing fabricated ships, Oct. '17; Inst., Motor Transportation, Sch. for Aeronautical Engrs., M. I. T.; Special Aid, Shipbuilding Dept., McClintic Marshall Construction Co., inspecting and expediting deliveries of ship machinery.
- PFOHL, R. E. (IV) Inspector, Sturtevant Aeroplane Co., Boston, Mass., Dec. '17; Foreman, Curtiss Aeroplane & Motor Corp., Buffalo, N. Y., Feb.—June '18. See Military Record.
- PIERCE, ALFRED (I) Material man, Submarine Boat Corp., Newark, N. J., builders of 5500-ton fabricated steel merchant ships; ordering, receiving, and distributing ship material, fourteen months.
- PIERCE, D. E. (X) Chemical Engr., High Explosives Div., Chemical Dept., E. I. du Pont de Nemours & Co.; doing experimental work on loading shells, submarine mines, and airplane bombs with new explosives, Eastern Laboratory, Gibbstown, N. J., until Dec. '17; operating fume recovery plant at mercury fulminate factory, Cap Works, Pompton Lakes, N. J., until after armistice.
- POLLARD, E. V. (II) Overseer of Planning, Gun Part Shop, Winchester Repeating Arms Co., New Haven, Conn., mfg. parts of the Model of 1917 rifle and Browning light automatic rifle.
- POLLEY, E. G. (II) Asst. Inspector of Ord., Govt. Arsenal, Watervliet, N. Y., Jan. '18—Mch. '19; in charge of all inspection, 6" to 16" guns, last three months.
- POWERS H. F. (II) Ship Draftsman, Bu. of Cons. and Repair, Navy Dept., Charlestown Navy Yard, 1 July—1 Dec. '17; Junior Inspector of Naval Cons., in charge of inspection of material and cons. work on one of the new submarines being built at Portsmouth, N. H., 1 Dec. '17—15 Jan. '19.
- QUILHOT, H. J. (II) Aeronautical Mechanical Engr., Sig. C., building aviation concentration camp, Morrison, Va., 15 Oct. '17—12 July '18. See Military Record.
- RANDOLPH, F. H. (II) in charge of Gas Mask Experimental and Research Laboratory, Goodyear Tire & Rubber Co., Akron, Ohio, working on development of overseas-type gas mask for U. S. A., putting same on production basis, 31 May '17—14 Aug. '18. See Military Record.
- RAY, L. S. (II) Inst., Naval Aviation Detachment, M. I. T.
- REYNOLDS, E. D. (VII) Bacteriologist, U. S. Public Health Service, in charge of public health laboratories in extra-cantonment zones; Newport, R. I.; Macon, Ga.; Greenville, S. C.; Washington, D. C.
- ROBINSON, R. K. (I) Junior Inspector of Naval Construction, U. S. N., New Orleans, Dec., '17—Sept. '18. See Military Record.
- ROCKETT, F. H. (VI) Engr. Asst., Outside Plant Engr. Dept., Bell Telephone Co. of Pa., Philadelphia, Pa.; connected with work at Hog Island, Camp Dix, Neville Island (Pittsburgh), New York Ship Yard, Bethlehem Steel Co., Midvale Steel Co.
- ROSS, R. H., (VI) with American Telephone & Telegraph Co., Washington, D. C., responsible for transmission on long distance telephone circuits out of Washington.
- ROUNDS, E. W. (II) Inst. in Aeronautics, Ground School, M. I. T., July—Oct. '17. See Military Record.
- ROWE, P. N. (III) with The Angus Co., Ltd., Calcutta agents for Bemis Brothers Bag Co., in charge of shipment of and payment for large quantities of jute cloth and grain product bags for U. S. Govt.
- RUSSELL, G. W. (II) General Mgr., James Russell Boiler Works Co., furnishing steel plate cons. for Navy, Quartermaster, Ord., Chemical Warfare Depts., American International Shipbuilding Corp., Submarine Boat Corp. Operative of American Protective League.
- SALT, L. B., (VI) (XV) Asst. to Purchasing Agent, B. F. Sturtevant Co. in charge of looking after material purchased for govt. work.
- SCHROEDER, R. A. (XII) Asst. Geologist, Tennessee Geological Survey, Nashville, Tenn., conducting special investigation of war minerals (oil and ball clay) in Tenn. in co-operation with U. S. Geological Survey.
- SMALL, F. S. (III) Assayer and Engr., Empire Zinc Co.; assayed ores and surveyed underground. Failed to pass examination for aviation on account of eyesight.
- STAHL, T. E. (XIII) Foreman, Bethlehem Shipbuilding Corp., Fore River Plant, Quincy, Mass., Apr. '17 to date (Nov. '19); Leading Man, Outside Hull Dept., in charge of cons. of destroyer hulls, 279 and 303; Foreman, in charge of Bolt and Rivet Reclaiming Dept., Structural Stowage Dept., and Plate Yard.
- STEBBINS, G. H. (XIII) Fore River Plant, Bethlehem Shipbuilding Corp., Quincy, Mass.; made preliminary layouts and arrangement, final layouts and machinery locations for most of big shops, bought machinery and equipment, for Squantum shipyard, '17; transferred to Squantum Works, in charge of machine shop follow-up work on destroyers, Jan. '18; transferred to office of Asst. Supt., in charge of Engr. Work, Jan. '19; supervised engr. work on Reid, launched 36 days after laying keel.
- STEVENS, G. R. (VI) Equipment Engr., Submarine Signal Co., July '17 to date (Oct. '19); supervision of installation of, testing, repairing, instructing in use of, submarine signal apparatus on navy ships; carried on extensive experiments in submarine detection. See Military Record.
- STEWART, H. R. (XV) Mech. Engr., Stewart Boiler Works, Worcester, Mass., making apparatus to extract helium from natural gas, also large storage tanks, boilers, etc., for use in indirect war work; Production Engr., Emergency Fleet Corp., in charge of production records in shipyard shop, building 8800-ton merchant vessels.

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- STOCKMANN, E. B. (XV) Estimator, Lake Torpedo Boat Co., Bridgeport, Conn., makers of submarine torpedo boats for U. S. Navy; Asst. Inspector of Ordn., Ord. Dept., Remington Union Metallic Cartridge Co., Bridgeport, Conn., in charge of process inspection. See Military Record.
- STORROW, J. J., JR. (VI) Fore River Shipbuilding Corp., 17 June—29 Aug. '17. See Military Record.
- SYLVANDER, R. C. (II) Asst. Mechanical Engr., Dept. of Commerce, Bu. of Standards, Washington, D. C.; research and development work on aeronautical instruments, cooperating with War and Navy Depts., 1 Dec. '17 to date (Sept. '19).
- THOMSON, G. W. (I) Ship Draftsman, Charlestown and Philadelphia Navy Yards. See Military Record.
- THRASHER, W. E. (XI) Asst. Engr., Morris Knowles, Inc., Supervising Engr., Camp Meade, Md., making survey for distribution system of water supply, and supervising cons. and operation of filter plant, July—Nov. '17. See Military Record.
- TOOLE, H. S. (XV) Chemist, chemical research work on dyestuffs, and work connected with research on toxic gases.
- TUTTLE, W. F. (XI) Ship Draftsman, Navy Dept., Brooklyn, N. Y., doing scientific work, making calculations, tests, and designs.
- TWOMEY, E. F. (XI) Asst. Engr., cons. of Camp McClellan, July—Dec. '17. See Military Record.
- VENABLE, C. S. (V) Chemist, Bu. of Mines, War Gas Investigation, working on development of mustard and other war gases, Jan.—5 Oct. '18. See Military Record.
- WAECHTER, J. E. (III) Metallurgical Engr., in charge of metallurgical laboratory and heat treatment dept., The Standard Tool Co., Cleveland, Ohio; metallurgist, and melter on Heroult Electric Furnace, making steel and heat treating of castings for Emergency Fleet Corp., The Crucible Steel Casting Co., Cleveland; metallurgical work, Carnegie Steel Co., Youngstown, Ohio. Refused for military service, as final citizenship papers could not be taken out.
- WAITE, D. E. (V) in charge of laboratory, Tyndel-Morris Co., Eddystone, Pa.; metallurgical research on submarine crank shafts and wire for govt. use, American Steel & Wire Co.; Asst. Director of the physical laboratories of the Worcester Dist.
- WALLACE, J. M. (XIII) Office Mgr., Trench Warfare Branch, Ord. Dept., Washington, D. C., reporting on mfr. of trench warfare matériel. See Military Record.
- WARNER, E. P. (II) Inst. in Aeronautical Engr., special army and navy courses in aeronautical engr., M. I. T.; gave special lectures on propellers in Naval Inspectors' School, wrote reports on aeronautical subjects for McCook Field; at M. I. T., 23 Apr. '17—28 Jan. '19; Aero. Engr., Airplane Engr. Dept., Bu. of Aircraft Production, Nov. '17—Nov. '18; operated M. I. T. wind tunnel throughout the war, first for the Institute, later for the Bu. of Aircraft Production.
- WATSON, P. B. (X) Asst. Chemical Engr., Bu. of Mines, at toxic gas station, American University Experiment Station, Washington, D. C., 10 Oct. '17—14 Oct. '18; worked on initial investigation of war-gas problems and their semi-commercial development. See Military Record.
- WEBBER, P. C. (XI) Ship Draftsman, Bu. of Cons. and Repair, Navy Dept., Charlestown, and Norfolk Navy Yards; made stability calculations.
- WESTON, T. H. (I) took Intensive Course in Naval Architecture, M. I. T.; worked in shops of Hull Div., Charlestown Navy Yard, five months; Ship Draftsman, Portsmouth Navy Yard, doing work connected with submarines, until armistice.
- WHEELER, E. R. (VI) Engr. Asst., The Western Union Telegraph & Cable Co., handling investigations and development connected with ocean cable telegraphy; had charge of installation of printing telegraph system at cable station at Hearts Content, Newfoundland.
- WHITE, L. B. (VII) Bacteriologist, Red Cross Sanitary Service, 26 Aug. '17; eight months at Little Rock, Ark., in charge of sanitation of environment of Camp Pike.
- WOOD, W. A. (XV) Supervisor of Methods, Shepard Electric Crane & Hoist Co., Montour Falls, N. Y., devising and installing improved methods of procedure to increase production by increasing efficiency. See Military Record.
- WOODWARD, P. G. (X) Junior Gas Chemist, Bu. of Mines, War Gas Investigations, research on smoke screen production, Pittsburgh and Washington, 4 June—7 Dec. '17. See Military Record.
- YEATON, P. O. (II) Mech. Engr., Procter & Gamble, 1 July—1 Dec. '17; Inst., Dept. of Mech. Engr., M. I. T., Dec. '17—Sept. '19, teaching men in the Engr. R. C., Naval Aviation Detachment, Aeronautical Engr., and S. A. T. C. Units. Tested textiles in the laboratory at M. I. T. for Govt. See Military Record.
- YOUNG, I. W., JR. (XV) Employment Mgr., E. I. du Pont de Nemours & Co., Wilmington, Del., until 8 Sept. '18. See Military Record.

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- ADAMS, M. W. (VI) Research Engr. with Western Electric Co., New York City, on problems connected with Submarine Base, New London, Conn., Dec. '17—June '18. See Military Record.
- ALLEN, L. J. (II) in charge of Design and Drafting Dept., General Radio Co., Cambridge, Mass., working on design and construction of transmitting, receiving, and laboratory radio apparatus for Army and Navy, Oct. '17—Aug. '18. See Military Record.

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- ANDERSEN, O. W. (I, II) Designer, International Harvester Co., Chicago, Ill., designing equipment and standardizing methods for the mfg. of ordnance material; Mobile Gun Carriage Sect., Arty. Div., Ord. Dept., Washington, D. C., working on designs of light and heavy artillery.
- BARNES, A. H. (V) Metallurgical and Explosive Chemist, Scovill Manufacturing Co., Waterbury, Conn., 10 Sept. '16—1 Dec. '17. See Military Record.
- BARRON, SAMUEL (X) Research Chemist on commercial development of the sulphate-nitrate process for the mfr. of ammonium nitrate and shell loading with amatol, U. S. Experimental Ammonium Nitrate Plant, Reynolds, Pa.; Asst. Supt., U. S. Ammonium Nitrate Plant, Perryville, Md.
- BASSETT, C. E. (XV) Asst. Inspector of Hull Material, Bu. of Cons. and Repair, U. S. N.
- BEACH, C. C. (I) Supt., Rock Run Coal Co., Canton, Pa., operating coal mines at Leolyn, Pa., and supplying local munition plants with coal.
- BEATTIE, C. M. (II) Inspector, Bethlehem Shipbuilding Corp., Ltd., Fore River Plant, Squantum, Mass.
- BEAVER, RUDOLF (I) Inst. in Navigation, and Officer on merchant vessels, U. S. Shipping Bd., preparing seamen and deck officers for masters' and mates' examinations. See Military Record.
- BERG, ALBERT (X) Foreman of Milling Machine Dept., C. H. Cowdrey Machine Works, Fitchburg, Mass., mfg. 3" anti-aircraft guns and 37 mm. guns.
- BEVINS, H. D. (II) Asst. Engr., Brown Co., Berlin, N. H., handling general cons. and engineering work.
- BLAISDELL, S. B. (II) Draftsman, Engr. C., U. S. A., working on Technology Tank. Inst. in Shipping Bd. School at M. I. T. See Military Record.
- BOICE, F. S. (II) Engr. in the Transmission Branch, Western Electric Co., Inc., New York City, doing experimental work in the development of submarine detection apparatus for the U. S. N.
- BRAISLIN, J. C. (XIII) Asst. Inspector of Naval Construction, Hull Div., Navy Yard, N. Y. in charge of transport cons. and repair. See Military Record.
- BROSNAHAN, T. V. (XV) with Chester Shipbuilding Co., Chester, Pa., investigating delays and misplacements of material through various departments of the plant.
- CAIRD, A. W. (I) Ship Draftsman, U. S. N. at Charlestown Navy Yard.
- CATLIN, N. T. (XIII) Naval Constructor and Ship Supt., Charlestown Navy Yard, 1 June '18—15 Apr. '19.
- CAUST, M. L. (XIV) Metallurgical Chemist, Niagara Electric Furnace Co., Inc., Niagara Falls, N. Y., supervising production of ferro-alloys in electric furnace.
- CHAMBERLAIN, S. H., JR. (II) Asst. Inspector of Materials, Ord. Dept., Inspection Div., Gun Carriage and Small Arms Sect., testing steel for gun carriages, also rifle barrel forgings.
- CHIANG, C. H. (XIII) Aeronautical Engr., Gallaudet Aircraft Corp.; Sperry Aeroplane Co.; Sturtevant Airplane Co.; designed parts of DH-4, Liberty Fighter, and D-4 airplanes.
- CHURCHILL, F. L. (II) Q. M., Merchant Marine, under U. S. Shipping Bd. Sec., 26 Apr. '18; Able Sea, June; Q. M., Oct. Made five trips to South America.
- CLARK, J. A. (VIII) Lens Inspector, American Optical Co., Southbridge, Mass., inspecting bomb sights for airplanes, sights for 37 mm. guns and machine guns. See Military Record.
- CLARK, J. L. (XV) Laboratory Asst., Bu. Mines, War Gas Investigations, doing research work on absorbents for gas masks, 15 Oct. '17—1 Feb. '18. Gassed and spent three months in hospital. See Military Record.
- CLEVELAND, B. R. (II) Designer, Engr. C., on secret work at M. I. T.; Asst. in Mechanical Engr. Laboratory under S. A. T. C.; Instructor, Merchant Marine Course, U. S. Shipping Bd., at M. I. T.
- CYR, H. M. (X) Chemical Engr., Bu. of Mines, Gas Defense Dept., U. S. War Dept.; helped erect first mustard gas plant at Cleveland, Ohio; made charcoal at Springfield, Mass., July '18. See Military Record.
- DAVIS, G. C. (VI) Power and Electric Heating Engr., Narragansett Electric Light Co., Providence, R. I.
- DERRAH, R. V. (II) Designer and Experimental Engr., Utah Copper Co., Arthur, Utah, designing and testing ore refining machinery and apparatus.
- DINKINS, P. M. (X) Junior Chemist, U. S. Bu. of Mines, American University, Washington, D. C., and Edgewood Arsenal, Hastings Plant, Hastings-on-Hudson. See Military Record.
- DONNELLY, T. J., JR. (I) Bookkeeper and Mgr., Coleman Bros., Chelsea, Mass., working at U. S. Naval Air Station, Chatham, 20 Nov. '17—Apr. '18. See Military Record.
- DOWSLEY, F. R. (II) in Engr. Dept., The Bartlett-Hayward Co., Baltimore, Md.; research and experimental work on shells, fuses, powder and high explosives. Rejected for service by Engr. Dept. of Naval Aviation and by the Army for physical reasons.
- FENNESSEY, ELIZABETH M. (VII) Industrial Health Inspector, Bd. of Labor and Industries, Commonwealth of Mass., inspecting factories, including plants mfg. govt. supplies, with special attention to sanitary conditions.
- FISCHER, F. W. (I) Draftsman, Office of U. S. Surveyor, Helena, Mont., later transferred to Phoenix, Ariz.; Inst. in Surveying and Military Mapping, S. A. T. C., University of Oklahoma. See Military Record.
- FITCH, H. W. (II) Draftsman, Colt's Patent Fire Arms Co., Hartford, Conn., 10 Jan.—9 Apr. '18, doing preliminary work on design of tools and gauges for Browning machine guns. See Military Record.

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- FLETCHER, S. W. (II) worked on Naval Construction at Charlestown Navy Yard. Member, Course in Naval Architecture, M. I. T.
- FLETT, L. H. (V) Research Chemist, National Aniline & Chemical Co., at Marcus Hook Works in Pa., and Buffalo, N. Y., improving and investigating certain processes for mfg. coal tar products used in dyes.
- FLINT, J. A. (II) Inspector, with E. B. Badger & Sons Co., Boston, Mass. See Military Record and page 398.
- FOLSOM, R. A. (XIV) Radio Engr., Radio Development Sect., Sig. C., Washington, D. C., testing and developing radio apparatus for Sig. C. Service, 5 July—27 Aug. '18. See Military Record.
- FULLER, SAMUEL (I) First Class Shipfitter, American International Shipbuilding Corp., Hog Island, Pa., constructing wooden templates from which steel plates were laid out.
- GELINAS, M. E. (VI) Member, Naval Architecture Course, M. I. T.; Draftsman, Charlestown Navy Yard.
- GIDLEY, R. T. (IV) Member, Naval Architecture Course, M. I. T.; Ship Draftsman, Charlestown Navy Yard, making inspection trips to Fore River Shipyard and the Victory Plant at Squantum, Mass., June '18—Feb. '19.
- GILES, E. P. (IV) Ship Supt. on mine layers, colliers, mine-laying vessels, and transports, Hull Div., Charlestown Navy Yard. See Military Record.
- GOTTLIEB, JULIUS (VII) worked for Selective Service Dept. in following capacities: Chief Clerk, Local Bd. No. 1; Sec., Local Bd. of Instruction and Chief Registrar, Div. No. 1; Draft Expert, Hodge Boiler Works, Ship Repairers, Boston, Mass. See Military Record.
- GRAY, C. H. G. (VI) Laboratory Inst. in Electrical Engr., S. A. T. C. and S. N. T. C., M. I. T.
- GREENLEAF, E. A. (I) Draftsman, Charlestown Navy Yard, after taking intensive Naval Architecture Course, M. I. T.; worked in connection with repair work on transports; Asst. Supt. on conversion of three mineplanters to troopships after armistice.
- GROHE, R. F. (VI) Engr. of Tests. Ord. Dept., Boston Dist. Office, testing and inspecting raw stock and finished parts used in making the 37 mm. tank gun.
- GRUNSFIELD, E. A., JR. (IV) training for commission in Cons. Corps, U. S. N. R. F., Charlestown Navy Yard, after taking intensive course in Naval Architecture, M. I. T., Feb.—May '18; attached to Office of Inside Supt. on completion of course, Dec. '18.
- GUIRANOVICH, A. J., JR. (I) Ship Draftsman, Navy Dept., after completing intensive Naval Architecture Course, M. I. T. See Military Record.
- HALFACRE, G. F. (III) Chemist, later Spelter Investigator, New Jersey Zinc Co., supplying Ord. Depts. of both Army and Navy with sulphuric acid, high grade spelter, and zinc oxide.
- HAMILTON, A. L. (II) Aeronautical Instruments Research Engr., Bu. of Standards, Washington, D. C., compiling, collecting, and dispensing information to army and navy engs. regarding mfg. of instruments, May—Nov. '18; work consisted of a co-operative movement to aid industrial instrument makers in technical details so that govt. specifications could be established in practice.
- HARRALL, E. R. (I) Production Asst., American International Shipbuilding Corp., Hog Island, Pa., 25 Feb.—1 Aug. '18. See Military Record.
- HENRY, W. J. (VI) Production Mgr. for Emil J. Simon, New York City, designing and mfg. radio equipment for Allied Armies and Navies.
- HERFURTH, W. R. (XIII) in charge of Seaplane Engine Dept., Naval Aviation Detachment, M. I. T. See Military Record.
- HERMAN, E. O. (VIII) Technical Expert on the Technical Control Staff, The Aluminum Castings Co., Cleveland, Ohio; in charge of technical work at plant mfg. parts for army and navy aircraft.
- HERZSTEIN, JOSEPH (VII) Scientific Asst., U. S. Public Health Service, investigating plants mfg. war materials, June and July '18. See Military Record.
- HOLT, W. R. (X) Junior Chemical Engr., War Dept., Bu. of Mines, Gas Mask Development Div. See Military Record.
- HOPKINS, F. H. (I) Plant Engr. and Architect, Sandy Point Shipbuilding Corp., Sandy Point, Maine, on foundation work, sanitation, water supply, and ship design.
- HOYE, S. A. (XV) Production Asst., American International Shipbuilding Corp., Hog Island, Pa., since June '18. (Page 391.)
- IREDELL, L. N. (IV) Designing Engr., worked on const. of Chelsea Naval Hospital, Squantum Plant of Fore River Shipbuilding Co., plant at Buffalo mfg. boilers for destroyers, and Hartford Turbine works mfg. turbines for destroyers; Foreman, Shipfitter, and General Foreman in charge of ways at Hog Island, Pa.
- JONES, W. A. (I) Drill Master for U. S. Naval Aviation Detachment, M. I. T., Oct. '17. See Military Record.
- KATZ, H. L. (I) Acting Ship Supt., Naval Construction, U. S. N.; Intensive Course for Naval Constructors, U. S. N., 28 May '18; Junior Inspector and Acting Ship Supt. at Atlantic Works, East Boston, Mass., in charge repair and alterations on U.S.S. Tallapoosa, Acushnet and Destroyers Delphy and Palmer, 28 Sept.—18 Dec. '18.
- KAYSER, W. H. (II) Computer on Ry. Arty., Engr. Div. of Ord. Dept., Washington, D. C., in charge of computations on anti-aircraft fire control.
- KEITH, STEWART (I) Engr., Fore River Plant, Bethlehem Shipbuilding Corp; in charge of tool rooms.

REGISTER OF CIVILIAN RECORDS

- KILDUFF, J. W. (XI) Engr. of Tests, U. S. Ord. Dept., at Carnegie Institute of Technology, 2 Aug.—1 Oct. '18; Bu. of Mines, Pittsburgh, Pa., 1 Oct.—1 Dec. '18; Gray & Davis, Amesbury, Mass., 1 Dec.—31 Mch. '19.
- KILEY, J. T. (VI) Laboratory Asst., Bu. of Standards, testing and developing airplane instruments.
- KLEINSCHMIDT, HELEN (IV) Laboratory Asst., Dept. of Commerce Bu. of Standards, Washington, D. C.; scientific work, testing of weights, chiefly high grade analytical standards.
- KLEINSCHMIDT, R. V. (II) Asst. Physicist, U. S. Bu. of Standards, Washington, D. C., Div. II, Sect. 7, Aeronautic Power Plants Investigation, in charge of radiator investigation, experimental and theoretical investigation of heat transfer and aerodynamical properties of cooling radiators, Aug. '17—May '19.
- KNOWLAND, T. M. (X) Junior Chemical Engr., Bu. of Mines, Dept. of Interior, at Gas Defense Plant, Astoria, N. Y. and at American University, Washington, D. C., until commissioned, Sept. '18. See Military Record.
- LEGGE, E. E. (II) Asst. Supt. of Shops, Watervliet Arsenal, Watervliet, N. Y., engaged in design and cons. of Heat Treating Plant, Dec. '17—Dec. '18; Non-Ferrous Metallurgist, Technical Div., A. S., McCook Field, Dayton, Ohio, for four months.
- LE VINE, H. C. (II) Mechanical Engr., Watervliet Arsenal, N. Y., and Watertown Arsenal, Mass., mfg. 240 mm. howitzers; Foreman, in charge of assembly of 240 mm. carriage body.
- LEVINE, L. I. (II) trained for Naval Constructor, Charlestown Navy Yard.
- LINDGREN, C. A., JR. (VI) Draftsman, Ord. Dept., Engr. Div., Trench Warfare Sect., working on design and improvement of hand grenades, gas and flame projectors and pyrotechnics, Washington, D. C., Aug. '18—Jan. '19.
- LINSCOTT, C. E. (V) Chemist, E. I. du Pont de Nemours & Co., engaged in chemical laboratory and plant work at Carney's Point, N. J., and Nashville, Tenn.
- McALLISTER, PAUL (XIV) gave up deferred classification in draft, 3-K, as technical expert in an essential industry, Oct. '18, and received notice of assignment to Ft. Monroe, Va., just before armistice.
- MACARDLE, D. W. (V) Acting Asst. Chief Chemist, Essex Aniline Works, Inc., South Middleton, Mass., mfg. dyes/ stuffs on govt. contracts and subcontracts.
- McGREENERY, P. A. (II) Asst. Ord. Inspector, Watervliet Arsenal, Watervliet, N. Y., inspecting guns, testing metal for breeches and gauge setting, Dec. '17—June '18. See Military Record.
- McGUIRE, W. S. (X) Chemist at Experimental Ammonium Nitrate Plant, Atlas Powder Co., Reynolds, Pa.; transferred to Perryville, Md., and to Toeh Bros., New York City, originators of "Battleship Gray" and "Camouflage Blue" for Govt.
- McINTIRE, R. D. (V) Inst. in Inorganic Chemistry for S. A. T. C., M. I. T.
- McLAUGHLIN, G. E. (II) Asst. Metallurgist, U. S. Cartridge Co., Lowell, Mass.
- McNARY, H. L. (XV) Receiving Clerk for Coleman Bros. at Chatham Naval Air Station, Mass., Aug. '17, and Supt. of Housing, Camp Devens, Mass., Mch.—Aug. '18. See Military Record.
- MAGOUN, F. A. (II) Naval Constructors' School, Charlestown Navy Yard.
- MAHONY, R. G. (II) Inspector of ordnance, Watervliet Arsenal, Watervliet, N. Y., Dec. '17—May '18, inspecting breech mechanisms of anti-aircraft field pieces and large guns. See Military Record.
- MANNING, E. R. (X) Research Chemist, E. I. du Pont de Nemours & Co., Wilmington, Del.
- MANUELIAN, H. D. (XV) Asst. Works Engr., U. S. Cartridge Co., Lowell, Mass., studying manufacture of small arms ammunition, and devising methods of carrying work from one operation to next.
- MARSHALL, L. H. (X) Research Chemist, Winchester Repeating Arms Co., New Haven, Conn., rust-proofing gun parts.
- MERRILL, D. G. (II) Mechanical Engr., Ord. Dept., at Watervliet Arsenal, Watervliet, N. Y., Emergency Cons. Div.
- MILLER, H. L. (II) with American International Shipbuilding Corp., Hog Island, Pa. (Page 391.)
- MONROE, W. P. (VI) Laboratory Asst., Bu. of Standards, Washington, D. C., doing research work in electric railway operation efficiency. See Military Record.
- MULLOWNEY, J. M., JR. (VI) Meter Tester, Watertown Arsenal, Watertown, Mass., in general charge of switchboards and meters. Rejected in Navy because physically unfit.
- MUMFORD, A. R. (XIV) 2d Asst. Engr., U. S. Shipping Bd.; instructed students in the theory and practice of Marine Engr., 2 Dec. '18—6 Mch. '19. See Military Record.
- MURRAY, A. F. (VI) Inst., Signaling and Radio Dept., U. S. Army School of Military Aeronautics, M. I. T. See Military Record.
- NEFF, E. W. (IV) Moulder with the Chandler Shipbuilding Co., San Pedro, Calif.; Draftsman and later Asst. Supt. of Cons., Fulton Shipbuilding Co.
- NORTON, F. H. (VIII) Aeronautical Engr., Bu. Aircraft Production, at M. I. T. doing research work in wind tunnel, and instructing officers in airplane design.
- O'BRIEN, J. W., JR. (II) Ord. Inspector, Watertown Arsenal, Watertown, Mass.
- OLSON, FRANK (VI) Asst. Inst., School of Military Aeronautics; M. I. T., Feb.—Sept. '18.
- PALMER, GRETCHEN A. (V) Chemist and Bacteriologist, Morris Knowles, Inc., Pittsburgh, Pa.

TECHNOLOGY'S WAR RECORD

- PARKER, M. F. (X) Chemical Engr., Western Electric Co., New York City. Was refused enlistment into active service; placed in Class VA by Draft Bd.
- PARKINSON, D. B. (IV) Construction Foreman, Emergency Fleet Corp. at Los Angeles Shipbuilding & Dry Dock Co. See Military Record.
- PARSONS, J. L. (V) Research Chemist in Gas Offense, Bu. of Mines, at M. I. T.
- PEARSON, J. K. (II) (VI) Technical Asst., Engr. Dept., American International Shipbuilding Corp., U. S. Shipping Bd., Emergency Fleet Corp., Hog Island, Pa. (Page 391.)
- POLLEYS, H. R. (XV) with Gallaudet Aircraft Corp., East Greenwich, R. I., developing gear drive for Liberty Motor. Refused enlistment for physical reasons.
- REID, KENNETH (IV) Ship Draftsman, Charlestown Navy Yard, June '18—Oct. '18. See Military Record.
- REIDY, M. A. (I) Engr., Purdy & Henderson Co., New York City, on munitions plants; Consulting Engr. on Structure, Aberdeen Proving Grounds, Md., for Ord. Dept.
- RICHARDSON, H. M. (XV) Engr. of Tests, Asst. Metallurgical Chemist, Metallographer and Asst. Metallurgist, Ord. Dept.; Army Ord. School, Pittsburgh, Pa., 6 Aug. '18; Watervliet Arsenal, N. Y., Oct. '18.
- ROBERTSON, W. H. (I) Water Supply Engr., Morris Knowles Construction Co., installing water supply for Camp McClellan, Ala. See Military Record.
- ROBINSON, W. R. (I) with Bartlett Hayward Co., Baltimore, Md., mfg. munitions, Jan.—July '18 and Nov. '18—Feb. '19. See Military Record.
- ROWE, J. E. (II) Appraisal Expert, Bu. Aircraft Production, Finance Dept., Boston Dist., 4 Feb. '19—28 Apr. '19. See Military Record.
- RUSSELL, A. L. (VI) Inst., Dept. of Electrical Engr., M. I. T., '18, and Inst., S. A. T. C., and S. N. T. C.
- SACKETT, G. A. (X) Chemist, Goodyear Tire & Rubber Co., Akron, Ohio. Unable to enter active service because of poor eyesight.
- SANGER, A. B. (III) Asst. Testing Engr., Anaconda Copper Co., Mont.; Mining Engr. and Assayer, Winona Copper Co., Mich. Tried to enlist but was not accepted.
- SATTELS, J. T. (XV) Staff Asst., American International Shipbuilding Corp., Hog Island, Pa. (Page 391.)
- SELTZER, MAX, (X) Chemical Engr., U. S. Bu. of Mines, on development of methods of mustard gas mfg., Cleveland, Ohio, 15 Apr.—5 Aug. '18. See Military Record.
- SHELTON, P. S. (VI) Turbine tester, General Electric Co., Lynn, Mass., Apr.—Oct. '18. See Military Record.
- SHERMAN, E. M. (II) Rod and Transimitan, Fay, Spofford & Thorndike, at Quartermaster Terminal, South Boston, Mass.; Draftsman, Ashton Valve Co., work on valves and gauges for Navy Dept. and Shipping Bd.
- SIDMAN, EDWARD (II) Inst. of Apprentices, and Machine Designer, Bethlehem Shipbuilding Corp. Ltd., mfg. Curtis turbines for torpedo boat destroyers.
- SMITH, A. G. (II) with Kalmus, Comstock & Wescott, Boston, Mass. (Page 275.)
- SOUTHWICK, A. M. (X) Leveller, N. Y., N. H. & H. R. R., '17-28 Aug. '18. See Military Record.
- SPOONER, F. C. (II) Quarterman, later Foreman, Hull Construction Dept., American International Shipbuilding Corp., Hog Island, Pa. See Military Record and page 391.
- STARR, D. L. (XI) Member Scientific Sect., Lake Torpedo Boat Co.
- STEPHENS, H. C. (III) Furnace Man, Bethlehem Steel Co., Bethlehem, Pa., June '17—Jan. '18; Asst. to General Supt., Whitaker Glessner Co., Portsmouth, Ohio, Feb. '18—Aug. '18. See Military Record.
- STEVENSON, E. P. (V) Asst. Chemist, Bu. of Mines, American University, Washington, D. C., doing research work. See Military Record.
- STRANG, P. M. (XV) Staff Worker, American International Shipbuilding Corp., Hog Island, Pa., in charge of making a report on a new system for "The Rapid and Economical Construction of Standardized Steel Ships at Hog Island." (Page 391.)
- SWEENEY, S. W. (VI) Rate Setter, Bethlehem Shipbuilding Corp., Ltd., at Fore River Plant, Squantum, Mass. Unable to enter active service on account of health.
- TAVENER, C. H. (II) Asst. Project Engr., Curtiss Engineering Corp., Garden City, N. Y., in charge of mathematical calculations connected with design of new airplanes developed at plant. (Page 370.)
- TIPTON, J. H. (VI) Student, Govt. Radio Course, M. I. T. and Harvard University, Feb.—25 May '18. See Military Record.
- TRAVIS, E. P. (XIV) Designer, Remington Arms Co., Bridgeport, Conn., Oct. '17; Checker on tools with American Brake Shoe & Foundry Co., Erie, Pa., Feb. '18; with Metz Co., Waltham, Mass., working on design of tools for making airplane parts, July '18.
- UNDERWOOD, H. R. (II) Tool Designer, Engr. Dept., Marmon Aircraft Engine Plant, Indianapolis, Ind., designing jigs, fixtures, special machinery used in mfr. of "Liberty 12" aviation motor. See Military Record.
- VAN ZELM, L. F. (IV) Material Supervisor, Northern Atlantic Dist. (Hog Island to Canada), Emergency Fleet Corp.
- WADE, H. R. (II) Machinist's Helper, Watertown Arsenal, 22 Aug. '17; Mechanical Draftsman, General Electric Co., Lynn, Mass., 24 Sept. '17; Stone & Webster, Boston, 5 Nov.; Blake & Knowles, Cambridge, 1 Apr. '18—10 May '19.

REGISTER OF CIVILIAN RECORDS

- WALKER, A. C. (X) Jr. Chemical Engr., Chemical Development Sect., Research Div., C. W. S., June '18—Nov. '18; stationed at American University, Washington, D. C., Boston, Mass., and Long Island Laboratories. See Military Record.
- WALKER, SIBYL (XII) Salt Lake Draft Bd.; Salt Lake Motor Corps; Red Cross Canteen; Comm. Soldiers and Sailors Club, Salt Lake City, Utah.
- WEBER, H. C. (X) Inst. in Radio Telegraphy and Aerial Observation, Army School of Military Aeronautics M. I. T., June '17—Dec. '17. See Military Record.
- WEISCOFF, M. W. (II) Aeronautical Mechanical Engr., U. S. Naval Aircraft Factory, Philadelphia, Pa. (Page 251.)
- WILLIAMS, J. A. (IV) Member, Intensive Course in Naval Architecture, M. I. T.; Course in Naval Construction Charlestown Navy Yard, Mass.
- WILLS, R. B. (IV) Training Course for commission in C. C., Charlestown Navy Yard, Mass.
- WOODRUFF, G. W. (II) Emory Base Hosp. Unit.; transferred by U. S. Shipping Bd. to Hull Dept., Terry Shipbuilding Corp., Port Wentworth, Savannah, Ga. See Military Record.
- WOODWARD, BOUDY LEMP (MRS. J. B.) (IV) Architectural Draftsman, Building and Maintenance Dept., General Electric Co., Erie, Pa.
- YOUNG, I. R. (II) Intensive Course in Naval Architecture, M. I. T., Feb.—May '18; Ship Draftsman, Hull Div. Charlestown Navy Yard, May '18—Jan. '19.
- YOUNG, JACOB (VI) Machinist, The Atlantic Works, East Boston, Mass., making repairs on transports, interned German ships, and U. S. battleships.
- ZEITFUCHS, E. H. (V) at M. I. T. did experimental work under Prof. Noyes; with Cooper-Hewitt Electric Co., Hoboken, N. J.
- 1919
- AMES, P. D. (II) on S. S. San Saba, Merchant Marine, '18. See Military Record.
- BEAN, R. C. (VII) worker for Exemption Bd., Boston, Mass.
- BEAULIEU, L. E. (VI) Inspector in Superintendent's Office, Newport News Shipbuilding & Dry Dock Co., Va., constructing torpedo boat destroyers and other ships, 23 Sept. '18. See Military Record.
- BECKETT, M. M. (X) Chemist, C. W. S., Development Div., Ord. Dept., Cleveland, Ohio. See Military Record.
- BERKOWITZ, MORRIS (II) Asst. to Production Engr., Metz Co., Waltham, Mass., checking changes in design of DH-4 and Handley-Page airplanes.
- BLUMBERG, H. B. (II) Production Engr., Hull Dept., Chester Shipbuilding Co., Ltd., Pa.
- BOLAN, R. S. (X) Research Chemist, National Aniline & Chemical Co., Marcus Hook, Pa., on dyestuffs, intermediates, and tear gas.
- BOURKE, N. T. (II) worker in steel mills in summer of '17. See Military Record.
- BRAVERMAN, JACOB (X) Technical Asst., Etna Chemical Co., Carnegie, Pa., mfg. T. N. T. for Govt.
- BREED, S. H. (II) Inspector in Plant Engineer's Office, Newport News Shipbuilding & Dry Dock Company, Va., in charge of delivery and installation of machinery in new shops and sheds.
- BRENNAN, C. J. (VII) Sn. Inspector, du Pont Engineering Co., Penniman, Va.; later Chemist, Ord. Dept., testing T. N. T. and smokeless powder.
- BROWN, L. A., JR. (IV) Draftsman, Engr. Div., Ord. Dept., Washington, D. C., 1 July—5 Sept. '18. See Military Record.
- BROWN, L. J. (II) Ship Draftsman, Charlestown Navy Yard, Mass., July—Oct. '19.
- BRUNELLE, S. A. (IV) Asst. Engr., Fabricator Shop No. 11, Submarine Boat Corp., auxiliary to U. S. Emergency Fleet Corp.
- CASHIN, R. F., JR. (V) Operating Chemist, Essex Aniline Works, South Middleton, Mass., directed production of khaki, sulfur brown, and sulfur green for Govt.
- CHANDLER, L. VAN D. (VII) Mosquito Engr., later Asst. Sn. Engr., du Pont Engineering Co., Nashville, Tenn., in charge of anti-fly work, delousing, sanitation of cons. and foreign-labor camps and of Dept. of Streets.
- CHAYNE, C. A. (II) Junior Mechanical Engr., Intelligence Office, National Advisory Comm. for Aeronautics, Washington, D. C., examining aeronautic inventions submitted for approval and reporting on their practicability; handled and supervised classification, filing, and distribution of technical reports.
- CHILDS, F. W. (II) Inspector of Ord. Material, Worcester, Mass., making final tests for 155 mm. howitzer gun carriages, June '18; Boston Dist. Salvage Bd., July '19.
- CHURCH, W. E. (IV) Civilian Asst. to Chief of New Works Dept., Puget Sound Navy Yard, Wash., May—Sept. '17. See Military Record.
- CLARK, W. B. (I) Inspector, Newport News Shipbuilding & Dry Dock Co., Va.
- COLEMAN, F. T. (XV) Asst. Material Agent, Newport News Shipbuilding & Dry Dock Co., Sept. '18—14 Oct. '19. Enrolled for limited service on account of defective eyesight, but not called.
- CONNORS, M. F. (I) Draftsman, Engr. Div., Ord. Dept., Washington, D. C., engaged in secret and confidential work with Tank Corps on design of fighting tanks. Debarred from active service on physical grounds.

TECHNOLOGY'S WAR RECORD

- DALTON, L. M. (II) Inspector on steel construction work, Emergency Fleet Corp., Newport News Shipbuilding & Dry Dock Co., Va. Twice refused for enlistment on account of heart.
- *DAUBE, H. J. (X) rejected for active service by draft board. Died, 13 May '20.
- DAVIS, I. W., Registration Officer, Local Draft Bd. No. 5, Boston, Mass., 5 June '17—Feb. '18. See Military Record.
- DEARDEN, R. H. (IV) Draftsman, Stone & Webster, Boston Office. Unable to enter active service on account of physical disability.
- DEHON, THEODORE, JR. (VI) applied for enlistment in Engr. C., Sept. '18; failed on physical examination; underwent operation to correct difficulty, discharged from hospital after armistice.
- DENISON, H. W. (VI) Inspector, Newport News Shipbuilding & Dry Dock Co., Va. Enlisted in U. S. N. R. F., July '18, but sent on graduating from M. I. T. in Sept. to Newport News, work being considered more important by naval authorities.
- EDGARTON, L. S. (XV) Building Sec., Y. M. C. A. Sec., Ft. Stark, Portsmouth, N. H., Jan. '18; Building Sec., Springfield, Mass., June—Dec. '18.
- ELLIOTT, J. T. (VI) Tester and Draftsman on submarine detector parts, General Electric Co. See Military Record.
- FLECKENSTEIN, JACKSON (XV) Mech. Engr., Engr. Dept., Grand Rapids Airplane Co., doing experimental work on production of Handley-Page planes. See Military Record.
- FREEMAN, E. A. (I) Draftsman and Computer, Fay, Spofford & Thorndike, Engrs., Boston Army Supply Base. Unable to enter active service on account of defective eyesight.
- GAIL, G. P. (II) Steam Engr., Newport News Shipbuilding & Dry Dock Co., installing machinery in engine rooms of destroyers, 1 Oct.—20 Dec. '18. See Military Record.
- GOLDSTEIN, L. J. (XV) Supervisor of inspection of lock and parts of Vickers Machine Gun, Colt's Patent Firearms Co. Tried to enlist in C. W. S. but had not succeeded when armistice was signed.
- GOULD, J. H., JR. (II) Machinist, Newport News Shipbuilding & Dry Dock Co., Va., building turbines and machinery for destroyers and cargo vessels for Shipping Bd.
- GRIEBEL, F. W. (II) Inspector, Newport News Shipbuilding & Dry Dock Co., Va., on piping in the ships. See Military Record.
- HALL, D. C. (X) Chemist, later Chief Asst. Chemist, Scovill Manufacturing Co., Waterbury, Conn., analyzing brass for primers, fuses, and condenser tubes, also gunpowder and steel.
- HAMILTON, RUSSELL (X) Chemist, Tremont Nail Co., under United Shoe Machinery Corp., Wareham, Mass., analyzing raw and finished product, including shoe nails for Army and Navy.
- HEDIN, C. H. (VI) Inspector, Newport News Shipbuilding & Dry Dock Co., Newport News, Va. See Military Record.
- HERZOG, H. A. (X) Chemist, Chas. Cooper & Co., General Chemists, Newark, N. J., mfg. ether, refined solvents, and colloid for Govt.
- HEYMAN, SAMUEL (II) enrolled in intensive course in Naval Architecture, M. I. T.
- JACOBS, J. E. (X) Requisition Secretary, Material Sect., Hull Div., Navy Yard, Boston, Mass., inspecting work on large German liners taken over by the U. S. and converted into transports.
- JENNEY, P. G. (I) Engr. of Surveys, U. S. Forest Service, making boundary surveys of lands acquired by the United States in the White Mountains, and southern Appalachians under the Weeks Law.
- JOHNSON, A. S. (XIV) Inspector, Plant Engineer's Dept., Newport News Shipbuilding & Dry Dock Co., Va.
- KARG, E. E. (X) Member of firm, Superior Glove Co., Johnstown, N. Y., mfg. gloves for Q. M. C. See Military Record.
- KAUFMAN, S. A. (X) Chemist, Converse Rubber Shoe Co., Malden, Mass., mfg. trench rubber boots, tires, and tubes.
- KENISON, A. C. (VI) Steam Engr. (Mach. 2 cl.), Newport News Shipbuilding & Dry Dock Co., Va. Tried to enlist in Sig. C.
- KIMBALL, W. F. (XV) Inspector, Hull Fitting and Plant Dept., Newport News Shipbuilding & Dry Dock Co., Va.
- LIU, G. C. (I) Draftsman, J. B. Ferguson & Co., Supervising Engrs., Oct. '18—June '19; worked on topographical maps, railroad track layouts, highway plan and profile and record drawings at Camp Eustis, Va.
- LOVEJOY, D. H. (IV) Production Engr., American International Shipbuilding Corp., Philadelphia, Pa. (Page 391.)
- MACKAY, W. R. (VI) Inst. in Phys. S., S. A. T. C., Georgia School of Technology, Atlanta, Ga.
- MacMULLIN, R. B. (X) Supervising Plant Chemist, du Pont Dye Works, Deepwater Point, Md., building new dyes and turning out intermediates and colors. See Military Record.
- MARDOIAN, H. H. (I) Transitman, Old Colony Div., N. Y., N. H. & H. R. R., Sept. '17—June '18. See Military Record.
- MAYNARD, W. A. (XV) Inspector of machinery, Newport News Shipbuilding and Dry Dock Co., Va., Sept.—Nov. '18.
- MEADER, JOHN (XV) Production Observer, American International Shipbuilding Corp., Hog Island, Pa., 14 Oct.—31 Dec. '18.

REGISTER OF CIVILIAN RECORDS

- MICHELSON, GEORGE (VI) took intensive Naval Architecture and Marine Engineering Course, M. I. T., in preparation for ship construction with Emergency Fleet Corp. or Navy.
- MITCHELL, R. W. (II) Rodman, J. B. Ferguson Co. of Hagerstown, Md.; construction work on roads and drains, Camp Eustis, Va. See Military Record.
- MORSE, G. A. A. (VII) on duty at Brooks' Tent Hosp., Corey Hill, Brookline, established for influenza patients from U. S. Shipping Board, East Boston.
- MULLER, A. L. (IV) Draftsman, C. W. S., Washington, D. C., Sept. '18. See Military Record.
- NOYES, M. S. (XIII) Hull Draftsman, Bath Iron Works, Maine, preparing standard plans for flush deck destroyers for Navy, 11 June—19 Sept. '17. See Military Record.
- OSGOOD, W. R. (II) Aeronautical Engr., Airplane Engr. Dept., Bu. of Aircraft Production, War Dept., Washington, D. C., 22 July—21 Dec. '18. See Military Record.
- PAGE, SHERWOOD (II) Inspector, Newport News Shipbuilding & Dry Dock Co., Va. See Military Record.
- PHELPS, C. W. (X) Shipfitter's Helper, Boston Navy Yard, Mass., 6 June—6 Oct. '18. See Military Record.
- PIERSON, MARGARET (X) Director, Analytical Laboratory, American Association of Creamery Butter Mfrs., Calif., providing butter for Russian and other governments; Recreation Director for Y.M.C.A., Oakland, Calif.
- POPPIC, CLARA (V) Chemist, E. A. Starke, Berkeley, Calif.
- POWERS, RAY (VII) Asst. in Dehydration Investigation, Bu. of Chemistry, Dept. of Agriculture, investigating means of packing dehydrated vegetables for the A. E. F. Unable to enter military service on account of poor eyesight.
- RHODES, P. L. (XIII) Draftsman on destroyers, Bath Iron Works, Maine, July—Aug. '17; Draftsman, L. E. Knott Apparatus Co., Cambridge, Mass., made original plans of mine that stopped the German submarines; Naval Draftsman, Scientific Sect., Hull Dept, Navy Yard, Boston, Mass., Sept. and Dec. '18; Sch. for Naval Constructors, M. I. T., Oct. and Nov. See Military Record.
- RICHARDS, A. S. (VI) Technical Asst., Newport News Shipbuilding & Dry Dock Co., Va.
- RIEGEL, J. L. (XV) Chemist, Warren Manufacturing Co., Riegelsville, N. J., mfg. rope and jute manila paper. Enlisted in F. A. but not called.
- RIGSBY, R. W. (XV) passed examination for 1st Lt., Engr. C., Nov. '18.
- RISCHLER, E. F. (I) Ship Draftsman, Bu. of Cons. and Repair, Boston Navy Yard.
- SEARLES, H. H. (IV) took intensive Naval Architecture Course, M. I. T.; Checker, Draftsman, and Progress Man, Fore River Shipbuilding Corp., Quincy, Mass., constructing torpedo boat destroyers and submarines for Navy and merchant vessels for Emergency Fleet Corp. Rejected for Engr. C. on account of underweight.
- SEIFERT, E. F. (V) in charge of Analytical Laboratory, Essex Aniline Works, Inc., South Middleton, Mass., producing khaki dye.
- SHEA, T. E. (VI) Asst., Dept. of Electrical Engr., June '18—June '19; Inst., S. A. T. C. and S. N. T. C., Oct.—Dec. '18.
- SHERMAN, B. H. (X) Chemist, E. I. du Pont de Nemours & Co., Hopewell, Va., mfg. gun cotton. See Military Record.
- SKOGSTAD, H. W. (IV) Architect, designing and planning industrial housing, La Crosse, Wis.
- SMITH, M. A. (VI) Inspector of Hull Cons., Newport News Shipbuilding & Dry Dock Co., Va., Sept. '18, while waiting to be called for active service. See Military Record.
- SMOLEY, E. R. (X) Investigator, Oxide East Plant, New Jersey Zinc Co.
- SNOW, L. I. (X) Operating Chemist, Essex Aniline Works, South Middleton, Mass., mfg. dyestuffs for Govt.
- SORENSEN, L. R. (VI) Inspector, in charge of hull castings for torpedo boat destroyers and battleships, Newport News Shipbuilding & Dry Dock Co., Va., Sept. '18.
- STAUBACH, A. B. (IV) took special course in Naval Architecture, M. I. T., Oct.—7 Dec. '18; on account of the armistice went to Wm. Cramp & Sons, Ship & Engine Building Co., Philadelphia, Pa.
- STEWART, C. C. (X) Research Chemist, National Aniline & Chemical Co., Marcus Hook, Pa.; worked on poisonous gases for Navy Dept., and on intermediate dyestuffs; improved existing methods of mfg. sneeze gas and tear gas. Gassed badly once.
- STRANG, J. M. (VII) Asst. in Dehydration Investigation, Dept. of Agriculture, Bu. of Chemistry, Div. of Dehydration Investigations. (Page 274.)
- UNTERSEE, MAXIMILIAN (IV) at M. I. T. Of. Tr. Camp, East Machias, Maine, June—Sept. '17; Intensive Course in Naval Architecture, preparing for a commission in the Bu. of Cons. and Repair, Sept.—Nov. '18.
- VAN NESTE, RAPHAEL (XIV) Supervisor of hull steel, American International Shipbuilding Corp., Hog Island, Pa., June—Sept. '18. See Military Record.
- WALWORTH, W. F. (XI) Asst., Civil Engr. Dept., S. A. T. C., M. I. T.
- WEBSTER, D. K., JR. (X) Chemist, E. I. du Pont de Nemours & Co., Deepwater, N. J., working on laboratory control of guncotton manufacture.

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- WHITAKER, M. M. (X) Technical Clerk, Production Officer, Mosler Safe Works, Hamilton, Ohio, mfg. 155 mm. howitzer carriages. See Military Record.
- WHITE, H. D. (I) took third Intensive Course in Naval Architecture, M. I. T., Sept. '18; Naval Draftsman on ship hulls, Bethlehem Shipbuilding Corp., Bethlehem, Pa.
- WILLER, D. F. (II) Engr. in charge of Pyrometer Systems, Ord. Dept., Springfield Armory, Mass.
- WILLIAMS, ELLEN E. (XV) Worker, Army and Navy Canteen, Boston, Mass.
- WINKFIELD, H. S. (VI) Mech. Engr., General Electric Co., Boston, Mass., making turbine calculations.
- WOOD, K. F. (IV) Asst. Engr., Div. of Standards, American International Shipbuilding Corp., Hog Island, Pa. (Page 391.)

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- ALLEN, L. H. (VI) Experimenter, General Electric Company, Lynn, Mass., 1 June—1 Oct. '18, experimenting with and testing submarine detectors. See Military Record and page 276.
- ATWATER, A. C. (X) Helper, Charlestown Navy Yard, 10 June—1 Sept. '18. See Military Record.
- BARRETT, S. J. (II) Engr., U. S. Marine School, Philadelphia, Pa.
- BIBBER, H. W. (VI) Toolmaker, General Electric Co., Lynn, Mass., working on submarine detectors, May—Sept. '18. See Military Record.
- BOWDITCH, F. C., JR. (XV) Asst. Inst., Signaling and Arty. Observation, U. S. Army School of Military Aeronautics, M. I. T., 7 June—7 Sept. '18. See Military Record.
- BOWER, H. G. (XV) Special Temporary Helper, U. S. Navy Yard, Charlestown, Mass. See Military Record.
- BROWN, G. I. (II) Draftsman, assisting Layout and Equipment Engr., U. S. Cartridge Co., Lowell, Mass., June—Oct. '18. See Military Record.
- COUCH, H. R. (X) Chemist, Rollin Chemical Co., Inc., Charleston, W. Va., June—Oct. '18. See Military Record.
- DeMEULENAER, JOHN (I) with Fay, Spofford & Thorndike on Boston Army Supply Base. See Military Record.
- DENNISON, H. T. (IV) with American International Shipbuilding Corp., Hog Island, Pa. (Page 391.)
- DES MARAIS, G. F. (II) Mould Loftsman, Naval Construction, Charlestown Navy Yard, June—Oct. '18. See Military Record.
- DE ZUBIRIA S., ALFREDO (V, VII) Shipfitter, American International Shipbuilding Corp., Hog Island, Pa., 5 July—15 Sept. '18. Citizen of foreign country (not a belligerent), unable to enter service.
- FIELD, HOWARD, JR. (II) Mechanic with Air Service, Ashburn, Ill., and Chanute Field, Rantoul, Ill., 7 June—1 Oct. '17. See Military Record.
- FRANCK, J. J. (X) Shipfitter, Charlestown Navy Yard, 7 June—14 Sept. '18. See Military Record.
- GEE, R. H. (II) Shipfitter and Machinist 2 cl., Texas Shipbuilding Co., 1 June—1 Sept. '18. See Military Record.
- GILLIATT, L. W. (X) Worker, Charlestown Navy Yard, June—Sept. '18. See Military Record and page 49.
- GLASSETT, A. T., with Fay, Spofford & Thorndike on Boston Army Supply Base. See Military Record.
- HALL, M. C. (VI) with American International Shipbuilding Corp., Hog Island, Pa. (Page 391.)
- HOWE, M. S. (XIII) Ship Carpenter, Fore River Shipbuilding Corp., Squantum, Mass. See Military Record.
- LEVY, H. M. (X) Draftsman, Charlestown Navy Yard, '18. See Military Record.
- LIPP, M. N. (I) with Fay, Spofford & Thorndike on Boston Army Supply Base.
- LOGAN, J. W., JR. (VI) Apprentice, Experimental Laboratory of Elihu Thomson, General Electric Co., June—Oct. '18. See Military Record.
- MAHER, P. F. (XIII) Inst., Machine Gunnery and Bomb Sights, Schools of Military and Naval Aeronautics, M. I. T. See Military Record.
- MINER, H. A. (II) Farm Hand, North Danville, Vt., June—Aug. '18. Worked in factory mfg. 3" shells.
- MOORE, I. L. (VI) Laboratory Asst., later Asst. Chemist, Chemistry Div., Bu. of Standards, Washington, D. C., developing and testing work on balloon fabrics and gases, July '17—Jan. '19.
- MURPHY, H. R. (VII) Clerk, Post Supply Office, Walter Reed General Hospital, Washington, D. C. See Military Record.
- NOLEN, JOHN, JR. (I) Worker, Emergency Fleet Corp., Bath, Maine, building steel tankers, June—Oct. '18. See Military Record.
- PADILLA, J. A. (I) with Fay, Spofford & Thorndike on Boston Army Supply Base.
- PERKINS, E. R. (VI) Shipfitter, Navy Yard, Boston, Mass., converting German ships Amerika and Kronprinzessin Cecilie into transports. Unable to enter military service on account of physical disability.
- ROBILLARD, R. E. (I) with Fay, Spofford & Thorndike on Boston Army Supply Base.
- SANDERS, M. S. (VI) Equipment Inspector, American Telephone & Telegraph Co., Washington, D. C., making transmission tests on commercial and govt. circuits, June—Sept. '18.
- SANDIFORD, R. B. (VI) physically disqualified for active service.
- SHAKESPEARE, MONROE (XV) Production Mgr., Wm. Shakespeare Co., Kalamazoo, Mich., mfg. trench mortar fuses and Zenith airplane carburetors. See Military Record.

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- STANWOOD, C. B. (X) Student, later Sub-Inspector of Ord., Ord. Dept., Worcester, Mass., inspecting parts of 155 mm. howitzer carriages, 5 June—23 Sept. '18. See Military Record.
- STOCKBARGER, D. C. (XIV) Laboratory Asst., Gas Offense Research, Bu. of Mines, Clark University, Worcester, Mass., Mch.—22 Aug. '19. See Military Record.
- TIRRELL, R. W. (II) Statistician, Production Div., New England Div., U. S. Shipping Bd., recording movement of materials, 1 July—19 Aug. '18. See Military Record.
- WARRINER, R. P. (XV) Draftsman, Fore River Shipbuilding Corp., June—Sept. '18; Officer in Junior S. A. T. C., M. I. T.
- WELLS, S. H. (II) Munition Worker, Gray-Davis Co., Cambridge, Mass., '18. See Military Record.
- WILSON, G. A. (II) Shipyard work during the summer of '18. (Page 49.)

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- AVERY, W. K. (II) Draftsman, American International Shipbuilding Corp., Hog Island, Pa., '18. See Military Record and page 391.
- BANKS, I. H. (X) Reamer, Fore River Shipbuilding Corp., Quincy, Mass., See Military Record.
- BARROW, W. B., JR. (XV) Foreign Installation Engr., Electrical Engineering Staff, American Radio & Research Corp., design installation and operation of Bush submarine detector; Medford Hillside, Mass., and New London, Conn., Aug. '17—Aug. '18; Plymouth, England, Aug.—Dec. '18.
- BLOMQUIST, H. R. (VI) Shipfitter, Lake Torpedo Boat Co., Bridgeport, Conn., '18. See Military Record.
- CANTERBURY, M. P. (I) Inspector, Civil Service branch of Ord. Dept., summer '18. See Military Record.
- CASTONGUAY, LAWRENCE (II) in Engr. Dept., Pratt & Whitney Co. See Military Record.
- COES, MARION L. (X) Laboratory worker, Rockefeller Commission for Prevention of Tuberculosis in France, Mch. '19; transferred to Y. W. C. A. as chaperon for war-brides on return trip. See Military Record.
- DELANY, E. F. (I) with Fay, Spofford & Thorndike, on Boston Army Supply Base. See Military Record.
- DENNISON, E. S. (II) rejected for military service because of defective eyesight.
- DREW, S. T. (I) Helper, Fore River Shipbuilding Corp., '18. See Military Record.
- FARREN, M. F. (IV) Draftsman, Civil Engr. Dept., N. Y. Shipbuilding Corp., Camden, N. J., making drawings of buildings for a new yard for Emergency Fleet Corp., June—Sept. '18. See Military Record.
- GIVNER, JOSEPH (XIV) Material man, Shipping Supt., later Asst. to Shop Supt., Hull Div., Charlestown Navy Yard, Mass.
- GRIFFIN, S. P. (I) with Fay, Spofford & Thorndike, on Boston Army Supply Base. See Military Record.
- HARTSOOK, A. J. (X) Head of Dept. of Electricity, Dept. of Radio Telegraphy, University of Nebraska, Lincoln; Head Inst., Dept. of Electricity, Govt. Radio School, Nebraska State University.
- HARVEY, A. R. (XV) Laboratory Asst., Bu. of Standards, Washington, D. C., working on investigation of aircraft radiator design.
- HATHEWAY, D. H. (VI) Machinist's Helper, Installation Plant, Portland Ship Ceiling Co., Maine, installing engines and auxiliaries on merchant vessels for Emergency Fleet Corp., U. S. Shipping Bd. See Military Record.
- HEMEON, J. R. (II) Machinist, Squantum Shipyard, 14 June—14 Sept. '18; worker. Boy Scout Drives for Liberty Loan Campaigns. See Military Record.
- HOWARD, E. M. (I) Electrical Draftsman, C-1, Electrical Scientific Sect., Lake Torpedo Boat Co., Bridgeport, Conn. See Military Record.
- IRWIN, W. H. (XV) Clerk, with Constructing Q. M., Camp Devens, '17. See Military Record.
- JACKSON, A. L. (XIII) Laye. Out. Squantum Plant, Fore River Shipbuilding Corp., laying out plates for destroyers, 10 June—15 Aug. '18. See Military Record.
- JOHNSON, C. H. R. (II) Chief Draftsman, Boston Belting Corp., Roxbury, Mass., doing gas mask and submarine signal experimental work. See Military Record.
- KENDALL, J. W. (XV) Draftsman, Wright-Martin Aircraft Corp., Los Angeles, Calif., Nov. '17—Feb. '18. See Military Record.
- KURTH, H. L. R. (VI) Tester, Inspector and later Supt., Frank B. Perry & Sons, Newton Centre, Mass., mfg. radio signal sets for Signal and Marine Corps and for aviation training stations.
- MCALLISTER, D. G. (VI) Draftsman, Schaw-Batcher Shipyard, U. S. Shipping Bd. See Military Record.
- MCNAUL, J. W. (II) Machinist, Watertown Arsenal, doing mechanical and electrical work on electric cranes, 10 June—1 Oct. '18. See Military Record.
- MAFFITT, H. C. (V) Chief of Labor, Chas. Weitz Sons, Constructing Contractor, Camp Dodge, Iowa, 26 June '17—9 Mch. '18. See Military Record.
- MERRILL, EDGERTON (X) Clerk, Gas Defense Plant, Long Island City, N. Y. See Military Record.
- MILLES, R. F. (XV) rejected for National Army and S. A. T. C., on account of heart trouble, Sept. '18.
- MITCHELL, TERRY (II) Student Shipbuilder, Harlan Plant, Bethlehem Shipbuilding Corp., Wilmington, Del. Feb.—Sept. '18. See Military Record.

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- NIXON, STUART (XV) Clerk, Draft Bd. for Dist. No. 2, Detroit, Mich., Aug.—Oct. '17; Asst. Statistician, Ord. Dept., Detroit Dist., June, July and Sept. '18. See Military Record.
- PEARLSTEIN, M. B. (I) Machinist, Squantum Ship Yard, and with American Steam Gauge and Valve Company. Rejected for Naval Aviation, being underweight. See Military Record.
- RIVKIN, B. M. (I) Transitman, later Accountant, Engineering Sect., Construction Div., U. S. A.; construction work at Camp Meade, Curtis Bay Ord. Depot and Aberdeen Proving Ground, Md.; valuation surveys of Camp Meigs, American University and Camp Upton, N. Y.
- ROSE, E. L. (VI) tried to join Canadian and U. S. military organizations, including S. A. T. C.; below required age. Allowed to take military drill with S. A. T. C. but not to join.
- RUSSELL, E. S. (II) Mechanical Draftsman, Bethlehem Shipbuilding Corp. Ltd., Fore River, Mass., working on design and trials of turbine and reciprocating engines. See Military Record.
- SHERBROOK, W. A. (II) with Fay, Spofford & Thorndike, on Boston Army Supply Base. See Military Record.
- STEVENS, A. H. (VI) with American International Shipbuilding Corp., Hog Island, Pa. (Page 391.)
- SUTHERLAND, K. R. (II) with Fay, Spofford & Thorndike, on Boston Army Supply Base. See Military Record.
- WHIPPLE, J. VAN H. (II) Structural Designer, J. G. White Engineering Corp., on steel work on Govt. Nitrate Plant No. 2, Muscle Shoals, Ala. See Military Record.
- WINSOR, C. E. (VI) Member, American Railway Mission, American Relief Administration in Europe. See Military Record.
- YOUNG, A. M. (V) Shipfitter's Helper, Charlestown Navy Yard, June—Oct. '18. See Military Record.

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- ABRAHAMS, D. J. (XV) Farmhand, U. S. Boys' Working Reserve for farm service, Camp Thomas, Concord, Mass.; (2) Clerk, Legal Advisory Board, Ward 19, Dorchester, Mass.
- BIGELOW, E. E. (I) with Fay, Spofford & Thorndike, on Boston Army Supply Base. See Military Record.
- BRITAIN, J. F. (I) Templet Maker, New York Shipbuilding Corp., Camden, N. J., summer, '18. See Military Record.
- BROCKETT, C. P. (X) Instrument (altimeter) Engr. and Designer, Taylor Instrument Companies, Rochester, N. Y., under govt. administration in work for Sig. C. and Air Service.
- BROWN, R. H. (XV) Aeronautical Mech. Engr., in charge Research Dept. Materials Testing Sect., Engineering Div., Air Service, McCook Field, Dayton, Ohio.
- CHURCH, J. W. (X) Shipfitter's Helper, Lake Torpedo Boat Co., Bridgeport, Conn. See Military Record.
- COBB, H. L. (XIV) Radio Electrician, assisting in research work, Radio Laboratory, Navy Yard, Phila., July '17—Jan. '19; supervised radio installations on destroyers and merchant ships, Jan.—Oct. '19.
- DOUBLEDAY, J. S. (X) Sgt. of the Guard in service of Ord. Dept., L. A. Gillespie Shell-Loading Co., South Amboy, N. Y., 1 June—15 Aug. '18. See Military Record.
- HEMPHILL, J. W. (II, XIV) Drill Pressman, and Govt. Inspector, Brass Shell Dept., Allegheny Steel Co., Brackenridge, Pa., May—Aug. '18. See Military Record.
- JOHNSON, A. L., 2d (XV) Laborer, Berst Mfg. Co., Cloquet, Minn., mfg. war supplies and hospital supplies. See Military Record.
- JONES, J. E., JR. (XV) Inspector of Lewis machine guns, 15 July—15 Sept. '18.
- KNIGHT, D. P. (VI) U. S. Boys' Working Reserve, Concord, Mass., May—Oct. '18. See Military Record.
- MARK, ISAAC, JR. (VI) Pvt., R. O. T. C., M. I. T.
- MORGAN, W. V. (X) farm work, summer '17; taught telegraphy afternoons; Analytical Chemist, Hodgman Rubber Co., Feb. '18; Laboratory Asst., Bu. of Standards, July '18. See Military Record.
- PATISTÉAS, M. J. (I, VI) Interpreter, Local Draft Bd., Boston.
- PATTY, J. C. (XV) Laboratory Asst., Bu. of Standards, Washington D. C., testing and research work with airplane thermometers.
- PERKINS, A. M. (II) Asst. to Research Engr., electric furnace, mfg. abrasive materials and a metal for mfr. of ordnance, Thorold, Ontario, June—Sept. '18. See Military Record.
- SCHULMAN, WILLIAM (X) Tool Setter and supply man, E. I. du Pont de Nemours & Co., Pompton Lakes, N. J., supplying shells to workers and repairing machines, summer '18. See Military Record.
- SINCLAIRE, F. S. (X) Asst. Chemist and Physicist, Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pa.
- SKINNER, FRANK (II) Machinist, Fore River Shipyard, summer, '18. See Military Record.
- THORON, B. W. (IX) Asst., American Legation, The Hague, Holland, 26 Feb.—27 Aug. '19. See Military Record.
- WALCH, D. E. (VI) Foreman, General Assembly of Airplanes, Gallaudet Aircraft Corp., East Greenwich, R. I. See Military Record.
- WHITMAN, V. E. (XIV) Laboratory Asst., Aeronautic Instrument Sect., Bu. of Standards, Dept. of Commerce. See Military Record.

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- EDISON, T. M. (VIII) engaged in experimental and development work for Army and Navy. Naval Consulting Bd., at West Orange, N. J., Key West, Fla., and a few tests at Aberdeen Proving Grounds, Md.
- HILDRETH, C. W. (XV) Junior Inspector, Curtiss Aeroplane & Motor Corp., Buffalo and Hammondsport, N. Y.; Bu. of Aircraft Production, Engine Sect., Aircraft Production Service, stationed at Wright-Martin Aircraft Corp., New Brunswick, N. J., and Long Island City; ready to be sent to France when armistice was signed.
- LANGE, F. F. (II) Gauge Designer, Gauge Design Sect., Gun Div., Office of the Chief of Ord., War Dept., Washington, D. C., Oct.—Dec. '17. See Military Record.
- THOMPSON, J. H. (VI) Shipfitter's helper, building submarines, The Lake Torpedo Boat Co., Bridgeport, Conn.
- WEILL, DAVID (II) Inspector on shells, American Brake Shoe & Foundry Co., Erie, Pa.; Head of Rate-Setting Dept., Bijou Motor Appliance Co., Hoboken, N. J. See Military Record.



